



**An Institute for Civil Services**

# **1 Yr. Complete CURRENT AFFAIRS REVISION**

**through 450 MCQ**

## **PART - 3**

- **Art & Culture**
- **Environment**
- **Science & Technology**



### CURRENT AFFAIRS (ART & CULTURE)

Time Allowed: 1 Hrs.

Maximum Marks: 100

Roll No.:

#### INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/ discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet.
4. While writing name and Roll No. on the top of the OMR Sheet in appropriate boxes use **"ONLY BLACK BALL POINT PEN"**.
5. This Test Booklet contains **50 items (questions)**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
6. You have to mark all your responses **ONLY** on the separate **OMR Answer Sheet** provided.
7. All items carry equal marks. **(2 marks each)**
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator only the Answer Sheet. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. Penalty for wrong answers:  
THERE WILL BE **PENALTY FOR WRONG ANSWERS MARKED** BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
  - (a) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third of the marks** assigned to that question will be **deducted as penalty**.
  - (b) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (c) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**

**1. Match the following pairs:**

<b>Folk Dances</b>	<b>Concerned State</b>
A. Karakattam	1. Gujarat
B. Taakala	2. Tamil Nadu
C. Misra Raas	3. Maharashtra

Select the correct answer using the code given below:

	A	B	C
(a)	2	3	1
(b)	3	1	2
(c)	2	1	3
(d)	1	2	3

**2. With reference to Bagru Block printing, consider the following statements:**

1. It is a traditional technique of printing with natural colour done in Gujarat.
2. The main colors used in Bagru are Red and Black.
3. Traditionally, motifs printed at Bagru are large with bold lines.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**3. With reference to Maithili language consider the following statements:**

1. The language has been accorded a constitutional status under the 8<sup>th</sup> Schedule of the constitution.
2. Mithilakshar or Tirhuta is the script of the language Maithili.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**4. Consider the following statements:**

1. The Ministry of Culture has organized Sanskriti Kumbh at Prayagraj, Uttar Pradesh recently.
2. UNESCO has inscribed Kumbh Mela on the list of Intangible Cultural Heritage.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**5. With reference to Swadesh Darshan Scheme, consider the following statements:**

1. It is launched by Ministry of Culture with the aim to develop theme based tourist circuit.
2. These tourist circuits will be developed on the principles of high tourist value, competitiveness and sustainability in an integrated manner.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**6. Consider the following statements:**

1. Archeological Survey of India (ASI) was founded in 1861 by Alexander Cunningham.
2. The protection and maintenance of monuments, declared as of national importance is taken up by Geological Survey of India.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**7. With reference to Adopt a Heritage project consider the following statements:**

1. Under this project, Monument Mitra will be selected among the private sector company, public sector company and individuals.
2. No funds are given by Ministry of Tourism.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only

- (c) Both 1 and 2
- (d) Neither 1 nor 2

**8. With reference to Badshahi Ashoorkhana consider the following statements:**

1. It was built by Muhammed Quli Qutb Shah.
2. It was a house of mourning of Sunni muslims.
3. During the rule of the Mughal Emperor Aurangzeb, the Ashoorkhana was converted into a bandikhana.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**9. With reference to Konark Sun Temple consider the following statements:**

1. It was built by King Narasimhadeva I, the great ruler of Satavahana dynasty.
2. It is a classic illustration of the Odisha style of Hindu temple architecture.
3. This temple is also known as Black Pagoda.

Which of the above statements are correct?

- (a) 1 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**10. Consider the following statements regarding Rani-ki-vav:**

1. It is an intricately constructed stepwell situated in Gujarat.
2. The stepwell is located on the banks of Sabarmati River.
3. It was built by Queen Udayamati of the Solanki Dynasty.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

**11. With reference to Khirki mosque consider the following statements:**

1. It is built with rubble stone.
2. The mosque was built by Khan-i-Jahan Junan Shah, the Prime Minister of Firoz Shah Tughluq.
3. It is an example of closed mosque in northern India.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**12. Which of the following is/are correct regarding Kalamkari painting?**

1. It depicts only the stories from puranas.
2. It is concentrated primarily in Andhra Pradesh.
3. Kalamkari paintings use only natural dyes.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**13. 'Togalu Gombeyatta, Tholu Bommalata and Ravanachhaya' are which form of puppetry that is practiced in India?**

- (a) Shadow puppetry
- (b) Rod puppetry
- (c) Glove puppetry
- (d) String puppetry

**14. Consider the following statements regarding mithila paintings:**

1. It originated in small village known as Maithili in Bihar.
2. The various styles of Mithila painting include Bharni, Tantrik, Katchni, Godna, and Kohbar.
3. The central themes of Mithila paintings are based on nature.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**15. With reference to Kambala, consider the following statements:**

- 1. It is traditional slush track buffalo race.
- 2. It is held annually in the coastal regions of Tamil Nadu.
- 3. The sports season generally starts in November and lasts till March.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**16. Consider the following statements:**

- 1. Walmiki and Malhar languages are categorised endangered.
- 2. Malhar belongs to "North Dravidian" subgroup of Dravidian family of languages.
- 3. Walmiki is spoken in district of Koraput of Odisha and on bordering districts of Andhra Pradesh.

Which of the above statements are correct?

- (a) 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**17. With reference to Nongkrem Dance Festival consider the following statements:**

- 1. It is celebrated for the harvest thanksgiving by the Khasi tribe.
- 2. It is the most important festival of the Khyrim state.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**18. With reference to Ambubachi Mela consider the following statements:**

- 1. The festival is also known as Mahakumbh of the East.
- 2. It symbolises the fertility cult of goddess Kamakhya.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**19. With reference to World Hindi conference consider the following statements:**

- 1. It is major event organised biennially by Ministry of Culture.
- 2. The 11th World Hindi Conference (WHC) was organized in Mauritius.
- 3. The theme of the Conference will be "Vaishvik Hindi Aur Bharatiya Sanskriti".

Which of the above statements are correct?

- (a) 1 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**20. Consider the following statements regarding Guru Padmasambhava:**

- 1. He is considered to be the founder of Nyingma tradition.
- 2. He was also known as Guru Rinpoche is widely venerated as a "Second Buddha".

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**21. Which of the following is/ are not present in a stupa?**

- 1. Medhi
- 2. Shaft
- 3. Abacus
- 4. Hermika

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 4 only

**22. Consider the following statements regarding various types of Paintings in India:**

- 1. "What happens to human life after death" is a theme used in Paitkar paintings
- 2. Warli painting is also known as Snake Painting

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**23. Consider the following statements regarding Sharqi style of Architecture:**

- 1. Sharqi style of architecture avoided the use of minars.
- 2. A unique feature of the buildings here is the use of bold and forceful characters painted on huge screens.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**24. Consider the following statements regarding Pahadi Style of Painting:**

- 1. Gita Govinda and Bhagwata Purana were one of the popular subjects of kangra school of Paintings
- 2. A famous group of paintings known as 'Twelve months' belongs to Dogra School of Painting.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**25. Which of the following are the benefits of World heritage Sites Status accorded by UNESCO?**

- 1. It enables access to global project management resources.
- 2. It facilitates creating partnerships between government, the private sector, and NGOs to achieve conservation goals.
- 3. Site becomes protected under the Geneva Convention against destruction or misuse during wartime.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

**26. Which of the following statements is/are correct about Thumri, a semi-classical Indian music?**

- 1. It was inspired by the Bhakti movement.
- 2. The language of the compositions is usually Hindi or Awadhi dialect.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**27. Consider the following pairs:**

<i>Folk Theatre</i>	<i>Regions of Popularity</i>
1. Bhavai	Gujarat and Rajasthan
2. Daskathia	Assam
3. Kariyila	Himachal Pradesh
4. Maach	Odisha

Which of the above pairs are correctly matched?

- (a) 1 and 2 only
- (b) 2 and 4 only
- (c) 1 and 3 only
- (d) 1, 2 and 3 only

**28. Which of the following is not the criterial requirements for a language to be accorded the status of a "Classical Language in India"?**

- (a) High antiquity of its early texts/recorded history over a period of 1500–2000 years;
- (b) A body of ancient literature/texts, which is considered a valuable heritage by generations of speakers;
- (c) The literary tradition be original and not borrowed from another speech community;
- (d) None

**29. Which of the following statements regarding European Architectures styles in India is incorrect?**

- (a) The Portuguese brought with them the Iberian style of architecture
- (b) The French brought the concept of urban city planning with them.
- (c) The British brought with them the Gothic style of architecture
- (d) The Cartesian grid plans and scientific architectural designs were the prominent features of Iberian Architecture

**30. Consider the following pairs:**

<i>Sun Temples in India</i>	<i>State</i>
1. Modhera Sun Temple	Gujarat
2. Konark Temple	Odisha
3. Dakshinaark Temple	Himachal Pradesh
4. Martand Sun Temple	Maharashtra

Which of the above pairs are correctly matched?

- (a) 1 and 2 only
- (b) 2 and 4 only
- (c) 1 and 3 only
- (d) 1, 2 and 3 only

**31. With reference to Vishishtadvaita consider the following statements:**

- 1. It advocates Bhakti to attain God.
- 2. It is a non-dualistic school of Vedanta philosophy.
- 3. Its proponent was Ramananda.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**32. Kuthiyottam ritual is performed in which Indian State?**

- (a) Kerala
- (b) Karnataka
- (c) Andhra Pradesh
- (d) Tamil Nadu

**33. Consider the following statements regarding Mahamasthakabhisheka:**

- 1. It is the head anointing ceremony which is performed once in 12 years to the monolithic statue of Lord Bahubali.
- 2. It was built by Chandragupta Maurya.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**34. With reference to Chithirai festival consider the following statements:**

- 1. It is celebrated every year at the Meenakshi Temple in Madurai, Tamil Nadu.
- 2. The festival symbolizes the unity of saivism and vaishnavism.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**35. Consider the following statements regarding Char Dham Yatra:**

- 1. The Yatra begins from Gangotri.
- 2. The Chardham Development Plan is the project of the Ministry of Road Transport and Highways.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only



- (c) Both 1 and 2  
(d) Neither 1 nor 2

**36. Match the following:**

**Harvest Festivals      Concerned State**

- |                 |                |
|-----------------|----------------|
| A. Nuakhai      | 1. West Bengal |
| B. Nabanna      | 2. Assam       |
| C. Bhogali Bihu | 3. Odisha      |

Select the correct answer using the code given below:

A      B      C

- |       |   |   |
|-------|---|---|
| (a) 3 | 1 | 2 |
| (b) 2 | 1 | 3 |
| (c) 3 | 2 | 1 |
| (d) 1 | 3 | 2 |

**37. Pakke Paga Hornbill Festival is been declared as the state festival of which of the following states?**

- (a) Nagaland  
(b) Arunachal Pradesh  
(c) Manipur  
(d) Mizoram

**38. With reference to Sadharan Brahmo Samaj consider the following statements:**

1. It was founded by Raja Ram Mohan Roy.
2. It believes in the immortality of the human soul.

Which of the above statements is/are correct?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

**39. Consider the following statements regarding Sangeet Natak Akademi:**

1. It is the nodal agency of the Ministry of Culture.
2. It has launched the second phase of the Web Campaign 'Sanjhi-Mujh Mein Kalakar'.
3. It is an initiative to document and promote the Intangible Cultural Heritage (ICH).

Which of the above statements are correct?

- (a) 1 and 2 only  
(b) 1 and 3 only  
(c) 2 and 3 only  
(d) 1, 2 and 3

**40. With reference to PRASAD Scheme consider the following statements:**

1. It was launched by Ministry of Culture.
2. It focuses on the development and beautification of the identified pilgrimage destinations.

Which of the above statements is/are incorrect?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

**41. Which of the following personalities has not received Sahitya Akademi Award?**

- (a) Ramdhari Singh Dinkar  
(b) R.K Narayan  
(c) Harivansh Rai Bachchan  
(d) Gulzar

**42. Which of the following features belong to Vijaynagar School of Temple Architecture?**

- (a) **Goupurams**, which were previously present on the front side, were now built on all the sides.  
(b) **The concept of secular buildings inside the temple premises was also introduced during this period**  
(c) Temples have more than one Mandapas  
(d) All of the above

**43. Which of the following statements is/are correct about kuchipudi dance form?**

1. The Kuchipudi dance style is a manifestation of the divine elements in the human body.
2. A Kuchipudi recital is generally accompanied with Carnatic music in Telugu Language.



Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**44. Which of the following statements is/are correct about Samkhya school of Philosophy?**

- 1. Samkhya School argued that salvation could be attained through the acquisition of knowledge
- 2. This school believed in dualism, i.e. the soul and the matter are separate entities.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**45. Consider the following statements:**

- 1. Chaitanya Mahaprabhu was an ardent Krishna devotee and popularized the chanting of "Hare Rama, Hare Krishna".
- 2. Guru Nanak was inspired by Kabir Das and he was the proponent of Nirguna School

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**46. With reference to Bhakti Movement, which of the following statements is incorrect?**

- (a) Bhakti movement originated in the Southern parts of India, especially Tamil Nadu between 7th and 12th century;
- (b) Ramanand was the first bhakti saint to use Hindi for the propagation of his message
- (c) Bijak refers to the composition of saint Kabir.
- (d) None

**47. With reference to Cultural Institutions in India, which of the following statements is/are correct?**

- 1. Crafts Council of India or CCI is a non-profit organisation that promotes activities to preserve and develop handicraft industry in India.
- 2. The Indira Gandhi National Centre For The Arts (IGNCA) is an autonomous institution that concentrates on *research, conservation, display and dissemination* of arts.

Select the correct answer using the code given below;

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**48. Which of the following statements regarding Sahitya Academi is incorrect?**

- (a) Apart from 22 languages listed in 8th schedule, Sahitya Academi gives recognition to English and Rajasthani
- (b) Bhasha Samman is awarded by Sahitya Academi for significant contribution to the languages recognised by the Academi.
- (c) Premchand Fellowship is awarded by Sahitya Academi to those who have contributed to the literature in Hindi.
- (d) None

**49. Consider the following pairs:**

Religious Movement	Founder
1. Ahmadiya Movement	Mirza Ghulam Ahmad
2. Faraizi Movement	Haji Shariatullah
3. Aligarh Movement	Sir Sayyid Ahmad Khan

Which of the above pairs are correctly matched?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**50. Consider the following statements regarding Folk paintings in India:**

1. The themes of Pattachitra paintings are mainly inspired from Jagannath and Vaishnava cult,
2. Kalighat paintings depicted religious note but later themes expressed social sentiments.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

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# **CURRENT AFFAIRS**

## **(ART AND CULTURE)**

### ***Answer Key***

<b>Q. 1</b>	<b>(a)</b>	<b>Q. 14</b>	<b>(a)</b>	<b>Q. 27</b>	<b>(c)</b>	<b>Q. 40</b>	<b>(a)</b>
<b>Q. 2</b>	<b>(c)</b>	<b>Q. 15</b>	<b>(b)</b>	<b>Q. 28</b>	<b>(d)</b>	<b>Q. 41</b>	<b>(d)</b>
<b>Q. 3</b>	<b>(c)</b>	<b>Q. 16</b>	<b>(d)</b>	<b>Q. 29</b>	<b>(d)</b>	<b>Q. 42</b>	<b>(d)</b>
<b>Q. 4</b>	<b>(c)</b>	<b>Q. 17</b>	<b>(c)</b>	<b>Q. 30</b>	<b>(a)</b>	<b>Q. 43</b>	<b>(b)</b>
<b>Q. 5</b>	<b>(d)</b>	<b>Q. 18</b>	<b>(c)</b>	<b>Q. 31</b>	<b>(a)</b>	<b>Q. 44</b>	<b>(c)</b>
<b>Q. 6</b>	<b>(a)</b>	<b>Q. 19</b>	<b>(c)</b>	<b>Q. 32</b>	<b>(a)</b>	<b>Q. 45</b>	<b>(c)</b>
<b>Q. 7</b>	<b>(c)</b>	<b>Q. 20</b>	<b>(c)</b>	<b>Q. 33</b>	<b>(a)</b>	<b>Q. 46</b>	<b>(d)</b>
<b>Q. 8</b>	<b>(b)</b>	<b>Q. 21</b>	<b>(b)</b>	<b>Q. 34</b>	<b>(c)</b>	<b>Q. 47</b>	<b>(c)</b>
<b>Q. 9</b>	<b>(c)</b>	<b>Q. 22</b>	<b>(a)</b>	<b>Q. 35</b>	<b>(b)</b>	<b>Q. 48</b>	<b>(b)</b>
<b>Q. 10</b>	<b>(b)</b>	<b>Q. 23</b>	<b>(c)</b>	<b>Q. 36</b>	<b>(a)</b>	<b>Q. 49</b>	<b>(d)</b>
<b>Q. 11</b>	<b>(d)</b>	<b>Q. 24</b>	<b>(a)</b>	<b>Q. 37</b>	<b>(b)</b>	<b>Q. 50</b>	<b>(c)</b>
<b>Q. 12</b>	<b>(c)</b>	<b>Q. 25</b>	<b>(d)</b>	<b>Q. 38</b>	<b>(b)</b>		
<b>Q. 13</b>	<b>(a)</b>	<b>Q. 26</b>	<b>(c)</b>	<b>Q. 39</b>	<b>(d)</b>		

## 1. Correct option: (a)

Explanation:

**Folk Dances presented during Republic Day Parade 2019**

- **Option (a) is correct:**

<b>Folk Dances</b>	<b>Concerned State</b>
--------------------	------------------------

- |               |                |
|---------------|----------------|
| A. Karakattam | 2. Tamil Nadu  |
| B. Taakala    | 3. Maharashtra |
| C. Misra Raas | 1. Gujarat     |

**Karakattam folk dance: Tamil Nadu**

- It is an ancient folk dance of Tamil Nadu performed in praise of the **rain goddess Mariamman**.
- The performers balance a pot on their head.
- Traditionally, this dance is categorized into two types- **Aatta Karakam** is danced with decorated pots on the head and symbolizes joy and happiness. It is mainly performed to entertain the audience.
- The **Sakthi Karakam** is performed only in temples as a spiritual offering

**Taakala Folk Dance: Maharashtra**

- It is related to the exchange of the '**takla**' **vegetable** among local tribal groups.

**Misra Raas of Gujarat:**

- Raas popularly known as **dandiya raas** is one of the most popular folk dances of Gujarat.
- Mishra raas/Gop raas is a variant of this genre. It is performed by both men and women. It is not based on any criteria of caste or profession.

**North Eastern state folk dances presented**

- **Monpa of Arunachal Pradesh:** It is a traditional dance form of the **Monpa tribe**, who inhabit parts of **West Kameng District and Tawang District in Arunachal Pradesh**. This dance is performed during the **Losar Festival**, which marks the tribe's New Year.
- **Mamita of Tripura:** It is performed on the occasion of **Mamita festival**, which is harvest festival of **Tripuri People**.
- **Satoiya Nitya of Assam**
- **Tamang Seto of Sikkim**

## 2. Correct option: (c)

Explanation:

**Bagru Block Printing**

- **Statement 1 is incorrect:** It is a traditional technique of printing with natural colour done by the **Chippa community in Bagru village of Rajasthan**.
- **Statement 2 is correct:** The main colors used in Bagru are **Red and Black**.
- **Statement 3 is correct:** Traditionally, motifs printed at Bagru are large with **bold lines**. The motifs include wild flowers, buds, leaves and printed geometrical patterns.
- Some other important traditional block printing techniques in India
  - **Gujarat:** Ajrakh Print
  - **Rajasthan:** Sanganeri, Ajrakh, Dabu
  - **Madhya Pradesh:** Bagh Print, Bherogarh Print (Batik)
  - **Andhra Pradesh:** Kalamkari
  - Calcutta, Serampur (West Bengal), Varanasi and Farrukabad (Uttar Pradesh) are also important centres of block printing in India.
- **In News:** The 'Titanwala Museum' in Bagru, Rajasthan was inaugurated to preserve the art of traditional Bagru block printing.

## 3. Correct option: (c)

Explanation:

**Maithili Language**

- **Statement 2 is correct:** **Mithilakshar or Tirhuta** is the script of the language Maithili.
- It is mainly spoken in India (Bihar, Jharkhand etc.) and Nepal.
- The **oldest form of Mithilakshar** is found in the **Sahodara stone inscriptions of 950 AD**.
- **Vidyapati Thakur** was the **first writer** to use Maithili as a literary language, his poetic works and songs are full of devotion to the **God Shiva**.
- In the 14th century, **Jyotishwar** enriched the literature in a holistic way. His work **Dhurt Samagam** is very popular in Maithili.

- In the 20th century, **Baba Nagarjun, Ramanand Renu** contributed in the field of prose writing.
- In 1910 the first Maithili organization, the Maithili Mahasabha came into being for the development of Maithili and Maithils.
- **Statement 1 is correct:** The language has been accorded a **constitutional status** in the **8th Schedule of the constitution**.
- The lack of use of Mithilakshar script has become the reason for the decline in the Maithili language.
- The **Ministry of Human Resource Development** has decided to implement the recommendations of a committee for the promotion and protection of Maithili language and its scripts.
- The committee has suggested establishing a Script and Manuscript Centre at Darbhanga and creating of audio-visual teaching material for mithilashkar script.

#### 4. Correct option: (c)

**Explanation:**

**Sanskriti Kumbh and Kumbh Mela**

- **Statement 1 is correct:** The **Ministry of Culture** had organized **Sanskriti Kumbh**, a 29 days cultural extravaganza at Kumbh Mela area, Prayagraj, Uttar Pradesh.
- It is being conducted with intent to showcase the rich Cultural Heritage of India in all its rich and varied dimensions viz. Performing Arts, Folk, Tribal and Classical art forms, Handicrafts, Cuisines, Exhibitions etc. all in one place.
- Kumbh Mela is one of **the oldest and largest congregations** in the world which is attended by millions of people irrespective of all caste, creed, sex and region.
- **Statement 2 is correct:** The significance of Kumbh Mela has been enhanced at the Global level as the **UNESCO has inscribed** Kumbh Mela on the **list of Intangible Cultural heritage for humanity in 2017**.
- The Kumbha Mela is held four times over the course of 12 years, in rotation between four Hindu pilgrimage places on four sacred rivers:

- **Haridwar** (banks of Ganga),
- **Prayagraj/Allahabad** (Confluence of Ganga, Yamuna and Saraswati),
- **Nashik** (banks of Godavari)
- **Ujjain** (banks of Shipra).

- Kumbh Mela can be traced back in history through the writings of 7th century Chinese traveller **Hiuen Tsang** who came to India during the rule of **Harshavardhan**. The festival was also popularised among people by the eighth century **saint Shankaracharya**.
- At Prayagraj, **Kumbh Mela held at every 6 years and Maha Kumbh at every 12 years**. Earlier they were known as **Ardh Kumbh and Kumbh**. But this year the government has announced the Ardh Kumbh will be known as Kumbh and Kumbh as Maha Kumbh.

#### 5. Correct option: (b)

**Explanation:**

**Swadesh Darshan Scheme**

- **Statement 1 is incorrect:** **Ministry of Tourism (MoT)** launched the Scheme for integrated development of theme based tourist circuits in the country in 2014-15
- Objective is to **develop theme-based tourist circuits** in the country. These tourist circuits will be developed on the principles of high tourist value, competitiveness and sustainability in an integrated manner.

**Features of Swadesh Darshan Scheme:**

- **Statement 2 is correct:** **100% centrally funded** for the project components undertaken for public funding.
- To leverage the **voluntary funding available** for Corporate Social Responsibility (CSR) initiatives of Central Public Sector Undertakings and corporate sector.
- Funding of individual project will vary from state to state and will be finalised on the basis of detailed project reports prepared by **PMC (Programme Management Consultant)**. PMC will be a national level consultant to be appointed by the **Mission Directorate**.

- A **National Steering Committee (NSC)** will be constituted with **Minister in charge of M/O Tourism as Chairman**, to steer the mission objectives and vision of the scheme.
- A Mission Directorate headed by the **Member Secretary, NSC** as a nodal officer will help in identification of projects in consultation with the States/ UTs governments and other stake holders.

## 6. Correct option: (a)

**Explanation:**

### Archeological Survey of India (ASI)

- The ASI under the **Ministry of Culture** is the premier organization for the archaeological researches and protection of the cultural heritage of the nation.
- Maintenance of ancient monuments and archaeological sites and remains of national importance is the prime concern of the ASI.
- Besides it regulates all archaeological activities in the country as per the provisions of the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**.
- It also regulates **Antiquities and Art Treasure Act, 1972**.
- **Statement 1 is correct:** It was founded in **1861 by Alexander Cunningham** who also became its first Director-General.
- **Statement 2 is incorrect:** Under **Section 4 of the Ancient Monuments and Archaeological Sites and Remains Act, 1958**, ancient monuments or archaeological sites which are of historical, archaeological or artistic interest and which have been in existence for **not less than 100 years** may be declared as of national importance.
- The protection and maintenance of monuments, declared as of national importance is taken up by ASI by way of structural repairs, chemical preservation and environmental development around the monument which is a regular and on-going process.
- ASI has declared 6 monuments as monuments of national importance in 2018. The 6 monuments are as follows:

- The 125-year-old Old High Court Building in Nagpur, Maharashtra,
- Two Mughal-era monuments in Agra (U.P.):
  - Haveli of Agha Khan
  - Hathi Khana
- The ancient Neemrana Baori in Alwar, Rajasthan
- The Group of Temples at Bolangir, Odisha
- The Vishnu Temple, Pithoragarh, Uttarakhand

## 7. Correct option: (c)

**Explanation:**

### 'Adopt a Heritage' project

Sl.No.	Name of Monument	State
1.	Red Fort	Delhi
2.	Gandikota Fort	Andhra Pradesh
3.	Area surrounding Gangotri Temple and Trail to Gaumukh	Uttarakhand
4.	Mt. Stok Kangri Trek, Lakakh	Jammu and Kashmir
5.	Jantar Mantar	Delhi
6.	Surajkund	Haryana
7.	Qutub Minar	Delhi
8.	Ajanta Caves	Maharashtra
9.	Leh Palace, Leh	Jammu & Kashmir
10.	Hampi (Hazara Rama Temple)	Karnataka

- **Statement 1 is correct:** It's a joint collaborative effort of The Ministry of Tourism, Ministry of Culture, Archeological Survey of India (ASI) and State/UTs Governments to develop the heritage sites/ monuments and making them tourist-friendly.
- Under the project private sector companies, public sector companies and individuals with best vision for the heritage site will be selected through a bidding process (**Vision Bidding**). Successful bidders will be tagged as **Monument Mitra**.
- **Statement 2 is correct:** These 'Monument Mitras' are expected to use Corporate



Social Responsibility (CSR) funds for providing amenities like toilets, drinking water, accessibility for the disabled, signage, audio guides etc. **No funds are given by Ministry of Tourism.**

- As of now government has put up a list of over 93 ASI monuments under this project.
- Recently Ministry of Culture informed Parliament that ten monuments have been adopted under 'Adopt a Heritage' (Apni dharohar Apni pehchan) project.

## 8. Correct option: (b)

**Explanation:**

**Hyderabad's 17th century Badshahi Ashoorkhana:**

- **Statement 1 is correct:** The 400-year old Ashoorkhana was built by **Muhammed Quli Qutb Shah**.
- **Statement 2 is incorrect:** It was a house of mourning, where large congregations of **Shia Muslims** gathered in memory of the martyrdom of **Imam Hussain** during **the month of Muharram**.
- The building consists of a **Kaman, Naqqar Khana** (where ceremonial drums are beaten), **Niyaz Khana** (where visitors are fed), **Sarai Khana** (place to rest), **Abdar Khana** (drinking water is stored), the **chabutra** (platform) and **a guard room**.
- **Statement 3 is correct:** During the rule of the Mughal Emperor Aurangzeb, in 1178 Hijri (about 1764 AD), the Ashoorkhana was converted into a bandikhana. For 80 years, it was used as a stable where horses were kept, before it was restored as a place of worship by the then **mutawalli Mir Nawazish Ali Khan**.
- The eight wooden pillars were reconstructed and the alams were reinstalled. During this time, the main entrance, Bab-e-Faiz-e-Imam-e-Alamiyan, was also constructed.

**Fact File:**

**Muhammad Quli Qutb Shah**

- He was the fifth sultan of the Qutb Shahi dynasty of Golkonda who ascended to the throne in 1580.
- **He founded the city of Hyderabad** and built its architectural centerpiece, the **Charminar**. He also built Charkaman archways.

- He is **a contemporary of Tulsidas, Mirabai and Surdas**. His poetry is bound to earth and revels in the universality of love and mystic experiences.
- During his reign, **Jean Baptiste Tavernier** visited and wrote about walking into the Qutb Shahi tombs complex where carpets were laid out and whoever walked in was served pulao.

## 9. Correct option: (c)

**Explanation:**

**Konark Sun Temple**

- Built in the 13th century, the Konark temple was conceived as a gigantic chariot of the Sun God, with 12 pairs of exquisitely ornamented wheels pulled by seven horses.
- The name Konark derives from the combination of the Sanskrit words **Kona (corner or angle) and Arka (the sun)**.
- **Statement 1 is incorrect:** It was built by **King Narasimhadeva I**, the great ruler of **Eastern Ganga dynasty**.
- **Statement 2 is correct:** Also called the **Surya Devalaya**, it is a classic illustration of the **Odisha style of Hindu temple architecture**.
- The temple is included in **UNESCO World Heritage Site in 1984** for its architectural greatness and also for the sophistication and abundance of sculptural work.
- The temple is perfect blend of Kalinga architecture, heritage, exotic beach and salient natural beauty.
- It is protected under the **National Framework of India by the Ancient Monuments and Archaeological Sites and Remains (AMASR) Act (1958)** and its Rules (1959).
- The **Konark** is the third link of **Odisha's Golden Triangle**. The first link is **Jagannath Puri** and the second link is **Bhubaneswar** (Capital city of Odisha).
- **Statement 3 is correct:** This temple was also known as **'Black Pagoda'** due to its dark color and used as a navigational landmark by ancient sailors to Odisha. Similarly, **the Jagannath Temple in Puri** was called the **"White Pagoda"**.
- It remains a major pilgrimage site for Hindus, who gather here every year for the **Chandrabhaga Mela** around the month of February.



## 10. Correct option: (b)

**Explanation:**

**Rani- ki- vav:**

- **Statement 1 is correct:** It is an intricately constructed stepwell situated in **Patan, Gujarat**.
- **Statement 2 is incorrect:** The stepwell is located on the banks of **Saraswati River**.
- **Statement 3 is correct:** It was built by **Queen Udayamati of the Solanki Dynasty** in the 11th-century as a memorial to her husband King Bhima I.
- Rani Ki Vav was built in the complex **'Maru-Gurjara' architectural style** with an inverted temple and seven levels of stairs and holds more than 500 principal sculptures.
- It highlights the sanctity of water as it is designed as an inverted temple under the earth's surface.
- The central theme is the **Dasavataras, or ten incarnations of Vishnu**, including Buddha. The avatars are accompanied by sadhus, Brahmins, and apsaras (celestial dancers).
- It was added to the list of **UNESCO's World Heritage Sites on June 22, 2014**.
- The site bagged the title of **the 'Cleanest Iconic Place' in India at the Indian Sanitation Conference 2016**.
- The Reserve Bank of India (RBI) had released a new lavender Rs. 100 currency note. The banknote highlights the rich and diverse cultural heritage of India as it prominently displays a photograph of 'Rani-ki-vav' (The Queen's Stepwell), an 11th century architectural wonder.

## 11. Correct option: (d)

**Explanation:**

**Khirki Mosque**

- This mosque lies on the southern periphery of the **village Khirki, New Delhi**.
- **Statement 2 is correct:** The mosque was built by **Khan-i-Jahan Junan Shah, the Prime Minister of Firoz Shah Tughluq (1351-88)** and is believed to be one of the seven mosques built by him.
- **Statement 1 is correct:** Built with **rubble stone**, the Khirki Mosque is **double-storeyed**.

- The lower storey consists only of a series of basement cells.
- Untidy bastions occupy its four corners, imparting it the look of a fortified building.
- The gateways of three sides, except on the west, are edged by narrowed minarets; the main entrance is from the east.
- Corresponding with the openings of cells on the lower storey, the upper storey contains holed windows (khirkis), which have given it its present name.
- The pillared courtyard is divided into twenty - five squares, five on each side, each square consisting of nine smaller squares.
- The larger squares, together with the square in the centre of the courtyard, are each covered with a cluster of nine small low domes.
- Among the remaining squares, four on the diagonals are left uncovered to admit light, while the others are covered with flat roofs.
- **Statement 3 is correct:** This ingenious way of covering the courtyard is repeated only in one other mosque erected by the same builder. These two are the only **examples of closed mosques in northern India**.

## 12. Correct option: (c)

**Explanation:**

**Kalamkari Art**

- Kalamkari literally translates into **"pen craft"**; with **'kalam' meaning pen and 'kari' meaning art**. It is among the most beautiful traditional Indian art forms and involves **block printing or hand printing**, typically done on pieces of cotton fabrics.
- **Statement 1 is incorrect:** It depicts deities and scenes taken from the great Hindu epics- Ramayana, Mahabharata, Puranas and mythological classics.
- **Statement 3 is correct:** The unique feature of the Kalamkari art is that it makes use of **only natural colours or vegetable dyes**.
- **Statement 2 is correct:** Kalamkari art and printing is **concentrated primarily**

in **Andhra Pradesh**, particularly in **Kalahasti and Machilipatnam**, and a few other smaller regions of the state.

- Srikalahasti was the main center of kalamkari art for a very important reason: it received a constant supply of clean river water.
- There are two identifiable styles of Kalamkari art in India:
  - In the **Machilipatnam style of Kalamkari**, motifs are essentially printed with hand-carved traditional blocks with intricate detailing painted by hands.
  - On the other hand, **Srikalahasti style** of painting draws inspiration from the Hindu mythology describing scenes from the epics and folklore. This style holds a strong religious connect because of its origin in the temples.
    - The Srikalahasti style is characterized by one very important feature: **free hand drawing**.
    - The procedure begins with the craftsman treating the cotton cloth using mordant and sketching the design outline with **black colour or 'kasami'**.
    - The only other colours used for filling the outlined sketch are those obtained from natural plants: indigo, green, red and vibrant yellow.
    - Therefore, every piece of the kalahasti kalamkari art is quite unique and absolutely authentic.
- A 'Kalamkari art museum' has been opened at Pedana in Andhra Pradesh. The museum traces the history of the art and displays the process of extraction of natural colours from various sources.

### 13. Correct option: (a)

**Explanation:**

#### Shadow Puppets

- **Option (a) is correct:** Shadow puppets are flat figures, cut out of leather, which has been treated to make it translucent. Shadow puppets are pressed against the screen with a strong source of light behind it. The manipulation between the light and the screen make silhouettes or

colorful shadows for the viewers who sit in front of the screen. This tradition of shadow puppets survives in Odisha Kerala, Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu.

#### • **Togalu Gombeyatta, Karnataka**

- These puppets are mostly small in size. The puppets however differ in size according to their social status, for instance, large size for kings and religious characters and smaller size for common people or servants.
- Tholu Bommalata, Andhra Pradesh
  - The puppets are large in size and have jointed waist, shoulders, elbows and knees. **They are colored on both sides**. Hence, these puppets throw colored shadows on the screen. The music is dominantly influenced by the classical music of the region and the theme of the puppet plays are drawn from the Ramayana, Mahabharata and Puranas.
- Ravanachhaya, Odisha
  - The puppets are in one piece and have no joints. Hence the manipulation requires great dexterity. **They are not colored**, hence throw opaque shadows on the screen. The puppets are made of deer skin and are conceived in bold dramatic poses. Apart from human and animal characters, many props such as trees, mountains, chariots, etc. are also used. Although, Ravanachhaya puppets are smaller in size-the largest not more than two feet have no jointed limbs, they create very sensitive and lyrical shadows.

### 14. Correct option: (a)

**Explanation:**

#### Mithila Painting

- Mithila painting is folk painting practiced in **Mithila region of India (especially Bihar) and Nepal**.
- It is also known as **Madhubani paintings** which mean '**forest of honey**'.
- It has been mentioned in ancient Indian texts like **Ramayana**.
- **Statement 1 is correct:** It originated in small village known as **Maithili in Bihar**.

- Initially, women from village drew paintings on freshly plastered mud walls of their home as illustration of their thoughts, hopes and dreams using fingers and twigs forming two dimensional imagery using paste of powdered rice.
- With time, it became part of festivities and special events like marriage. It also used colors derived from vegetables and plants.
- Now they are also painted on cloth, handmade paper and canvas.
- Statement 3 is incorrect:** The **central themes of Mithila paintings** are based on **Hindu Gods and Goddesses**.
- Its main theme is supported by **traditional geometric patterns**.
- Some of main attributes of these paintings are double line border, abstract-like figures of deities, ornate floral patterns, bold use of colors and bulging eyes and jolting nose of faces of figures.
- Statement 2 is correct:** The various styles of Mithila painting include **Bharni, Tantrik, Katchni, Godna, and Kohbar**, which were historically painted **only by women from the upper strata in caste system**, which used to make them on mud walls on special occasions.
- Mithila painting has been **accorded the coveted GI (geographical Indication) status** as it has remained confined to compact geographical area and skills have been passed on through centuries, but content and the style have largely remained same.
- Madhubani railway station got complete makeover with Mithila paintings. The makeover project was unique initiative of Indian Railways to experiment with local artists voluntarily painting works in short span of two months.

### 15. Correct option: (b)

**Explanation:**

**Kambala**

- Statement 1 is correct and Statement 2 is incorrect::** Kambala is **traditional slush track buffalo race** that is held annually in **coastal districts of Karnataka** to entertain rural people of the area.
- Slushy/marshy paddy field track** is used for Kambala.

- Statement 3 is correct:** The sports season generally starts in **November and lasts till March**.
- The contest generally takes place between two pairs of buffaloes, each pair race in two separate wet rice fields' tracks, controlled by a whip-lashing farmer.
- In the traditional form of Kambala, buffalo racing was non-competitive and buffalo pairs ran one by one in paddy fields.
- Besides, there was also ritualistic approach as some agriculturist's race their buffaloes as a means to thank god for protecting their animals from disease.
- But in recent times, Kambala has become an organised rural sport.

### 16. Correct option: (d)

**Explanation:**

**Walmiki and Malhar Languages**

- A linguist from the University of Hyderabad (UoH) has stumbled on two languages called Walmiki and Malhar both predominantly in the remote regions of Odisha.
- They were discovered by **Prof Panchanan Mohanty** as part of activity of **Centre for Endangered Languages and Mother Tongue Studies**.
- The professor had collected some data and did preliminary analysis of these languages and published paper in proceedings of **XX Annual Conference of Foundation for Endangered Languages, UK**.
- Statement 1 is correct:** The languages are **categorised 'endangered'** as the number of people speaking is small. These languages are spoken in **Andhra Pradesh and Odisha**.
- Only a few people living in the forest and hilly areas speak these languages.

**Walmiki:**

- Statement 3 is correct** It is spoken in district of **Koraput of Odisha** and on bordering districts of Andhra Pradesh.
- It is an isolate language and does not belonged to particular family of languages.

- Its name is interesting and indicative as speech of the community claims to be descent from great **Indian saint-poet Valmiki**, who is credited to have **written one version of epic Ramayana**.

#### Malhar:

- It is spoken in a remote and isolated hamlet about 165 km away **from Bhubaneswar, Odisha**.
- Now it is spoken by community consisting of about 75 speakers including children.
- **Statement 2 is correct:** It belongs to **"North Dravidian"** subgroup of Dravidian family of languages.
- It has close affinities with other North Dravidian languages like Malto and Kurux spoken in Jharkhand, West Bengal and Bihar.

### 17. Correct option: (c)

#### Explanation:

#### Nongkrem Dance Festival

- **Statement 1 is correct:** Nongkrem Dance Festival (held annually in November) is a five day festival which is celebrated for the harvest thanksgiving by the **Khasi tribe**.
- **Statement 2 is correct:** The Nongkrem Dance is the most important festival of the **Khyrim state**.
- The festival is associated mostly with goat sacrifice and is held at Smit, which is around 15 kilometres to the southwest of Shillong.
- The Nongkrem word means **"Goat Killing Ceremony"**. The word Nongkrem was used because in the past years, the tribes used to celebrate this festival at Nongkrem, which is the headquarters of Khyrim state.
- Drums and Pipes are played continuously during this festival to mark the occasion.
- The traditional dance is performed by dancers who are the young men and women of the tribe. The youngsters get dressed up in exquisite attire. The silver or gold crowns worn by the tribes on their heads signify the glory and dignity of the Khasi society.
- The dance performed by the man is known as **"Ka Shad Mastieh"**.

- The men dance by holding the sword in their right hand and whisks in their left. The sword is used to symbolize a man's defense of himself and his family. Men wear dhotis, full sleeved shirts, embroidered sleeveless coats and turbans.
- Prayers are offered to **Ka Pah Syntiew and U Suid Nia Tong Syiem**. The prayer is offered for good harvest, peace and prosperity for all the community people.

### 18. Correct option: (c)

#### Explanation:

#### Ambubachi Mela:

- **Statement 2 is correct:** It symbolises the fertility cult of goddess Kamakhya.
- There is no idol in the temple; the goddess is worshipped in the form of a yoni-like stone over which a natural spring flows.
- Also known as **Siddha Kubjika**, the goddess is a Hindu tantric goddess of desire who evolved in the Himalayan hills. She is also identified as **Kali and Maha Tripura**.
- **Statement 1 is correct:** The festival is also known as **'Mahakumbh of the East'** as it draws lakhs of devotees from all over the world.

#### Kamakhya Temple:

- Kamakhya, atop **Nilachal Hills in Guwahati**, is one of 51 shaktipeeths or seat of Shakti followers, each representing a body part of the Sati, Lord Shiva's companion.
- The temple's sanctum sanctorum (garbhagriha) houses **the yoni — female genital** — symbolized by a rock.
- Kamakhya Temple denotes the spot where Sati used to retire in secret to satisfy her amour with Shiva, and it was also the place where her yoni fell after Shiva danced with the corpse of Sati.
- The only ones that avoid the temple are the descendants of the medieval **Koch royalty**, who had reconstructed **Kamakhya temple in 1565**.
- This is because the goddess is believed to have cursed the royalty after the king and his brother Chilarai — one of Assam's revered generals — had secretly watched her dance.



- There are legends about the goddess dancing when Kendukoli, a priest during Naranarayan's reign, performed puja with his eyes shut.
- Naranarayan and Chilarai convinced the priest to allow them to watch the goddess's dance.
- Incensed, the goddess punished the priest besides cursing the duo and their descendants with doom if they visited the Kamakhya temple ever.

#### Tuloni Biya:

- The ritualistic fair celebrating the goddess' period is one of the reasons why the taboo associated with menstruation is less in Assam compared to other parts of India.
- The attainment of womanhood of girls in Assam is celebrated with a ritual called 'Tuloni Biya', meaning small wedding.
- Ambubachi Mela is also an occasion to promote awareness on menstrual hygiene.

#### 19. Correct option: (c)

##### Explanation:

##### 11th World Hindi Conference (WHC)

- **Statement 2 is correct:** The **11th World Hindi Conference (WHC)** was organized in August 2018 in **Mauritius by the Ministry of External Affairs**, Government of India in association with the Government of Mauritius.
- **Statement 3 is correct:** The theme of the Conference was **"Vaishvik Hindi Aur Bharatiy Sanskriti"**.
- The conference was aimed at providing common platform to several Hindi scholars, writers and laureates from different parts of the world to contribute the language.
- Its venue was at **Swami Vivekanand International Convention Centre, Pailles Mauritius**.
- The conference covered **both classical and modern elements** of Hindi and also saw participation delegates and scholars of Hindi from all over the world.

##### World Hindi Conference:

- **Statement 1 is incorrect:** The World Hindi Conference is major event organised **every three years by MEA** to increase the popularity of Hindi globally.

- The first conference was held from **10 to 12 January 1975 in Nagpur, Maharashtra** and was inaugurated by then Prime Minister Indira Gandhi. Since then, ten such Conferences have been held in different parts of world.
- In the first conference, then Prime Minister of Mauritius Seewoosagur Ramgoolam was Chief Guest and it was attended by 122 delegates from 30 countries.
- In remembrance of the first conference, every year **10th January** is being observed as **World Hindi Day**.
- The **10 edition of World Hindi Conference** was held in **Bhopal, Madhya Pradesh (India) in 2015** with the theme of **"Hindi Jagat-Vistar and Sambhavnaye"**.

#### 20. Correct option: (c)

##### Explanation:

##### Guru Padmasambhava

- An International Conference on 8<sup>th</sup> century Himalayan sage Guru Padmasambhava was held **in New Delhi**.
- The conference was organised as part of events to commemorate 50-years of formalization of diplomatic ties between India and Bhutan.
- Guru Padmasambhava was born in India and travelled all across Himalayan region in the 8<sup>th</sup> century to spread Buddhism and Buddhist teachings.
- Guru Padmasambhava is highly revered in Bhutan.
- **Statement 2 is correct:** He was also known as **Guru Rinpoche** is widely venerated as a **"second Buddha"** by adherents of Tibetan Buddhism in Tibet, Nepal, Bhutan, the Himalayan states of India, and elsewhere.
- **Statement 1 is correct:** Guru Padmasambhava is also considered to be the **founder of Nyingma tradition**, oldest of the four major schools of Tibetan Buddhism.

#### 21. Correct option: (b)

##### Explanation

##### Stupa Architecture Design and its Related Terms

- A circular terrace (medhi). The terrace—surrounded by a similar three-bar railing—supports the anda and raises it off the ground (black highlights); it likely served as a platform for ritual circumambulation.
- Anda -large hemispherical dome where a casket containing buddha relics(dhatu) was placed in small central chamber
- Inner wall – unburnt brick, outer wall – burnt brick
- Harmika – square pavilion on the flattened summit of the dome
- Chatra – umbrella built on the top of the dome
- Pradakshinapatha – path for clockwise circumambulation surrounded by a fence built encircling the stupa
- Torana – gateways having sculptures depicting Jataka tale

## 22. Correct option: (a)

### Explanation

#### Paitkar Painting

- Practiced by the tribal people of Jharkhand, Paitkar paintings or scroll paintings are considered one of the ancient schools of painting in the country. This old form of painting has cultural association with Ma Mansa, one of the most popular goddesses in tribal household.
- These paintings are linked to the social and religious customs including giving alms and holding yajnas. The common theme of Paitkar paintings is 'What happens to human life post death'. Although an ancient art, it is on the verge of extinction given the rate of its decline.

#### Manjusha Painting

- This art form belongs to Bhagalpur region of Bihar. It is also known as Angika art, where 'ang' refers to one of the Mahajan Pada. Since snake motifs are always present, it is also called snake **painting**.

## 23. Correct option: (c)

### Explanation

#### Jaunpur School (Sharqi Style of Architecture)

- Patronised by the Sharqi rulers, Jaunpur became a centre of great art and cultural activity.

- This style of architecture also came to be known as Sharqi style and also avoided the use of minars, as the Pathan style.
- A unique feature of the buildings here is the use of bold and forceful characters painted on huge screens in the centre and side bays of the prayer hall.

## 24. Correct option: (a)

### Explanation

#### Kangra School

- After the decline of the Mughal empire, many artists trained in the Mughal style migrated to the Kangra region as they got patronage by Raja Govardhan Singh in 1774. It led to the birth of Guler- Kangra School of paintings. It first evolved in Guler then came to Kangra. This school reached its zenith under the patronage of Raja Sansar Chand. His paintings were marked with a sensuality and intelligence that the other schools lack.
- The popular subjects were the Gita Govinda, Bhagwata Purana, Satsai of Biharilal and Nal Damyanti. Love scenes of Krishna was very prominent theme. All the paintings had another worldly feel about them. Another very famous group of paintings is the 'Twelve months' where the artist tried to bring forth the effect of the twelve months on the emotions of human beings. This emotive style was popular till the 19th century.

## 25. Correct Option: (d)

### Explanation

#### Benefits of the World Heritage Site Status

- Brings international attention to the need for the preservation and conservation of the site.
- Brings tourism to the site ensuring economic benefits.
- UNESCO can provide funds for restoration, preservation, and training, if required.
- Promotes close ties with the United Nations system and the prestige and support it provides.
- Enables access to global project management resources.

- Facilitates creating partnerships between government, the private sector, and NGOs to achieve conservation goals.
- Site becomes protected under the Geneva Convention against destruction or misuse during wartime.

## 26. Correct Option: (c)

### Explanation

#### Thumri

- It is based on mixed ragas and is commonly considered to be semi classical Indian music.
- The compositions are either romantic or devotional in nature.
- This was inspired by the Bhakti movement so much that the text usually revolves around the girl's love for Krishna.
- The language of the composition is usually Hindi or Awadhi dialect or the Braj Bhasha dialect.
- The main Gharanas of thumri are based in Banaras and Lucknow and one of the most timeless voice of singing thumri is of Begum Akhtar who is a household name for her husky voice and boundless range in singing.

## 27. Correct Option: (c)

### Explanation

<i>Folk Theatre</i>	<i>Regions of Popularity</i>
(a) Bhavai	Gujarat and Rajasthan
(b) Daskathia	Odisha
(c) Kariyila	Himachal Pradesh
(d) Maach	Malwa

- Bhavai is a popular folk theatre form of Gujarat and Rajasthan, mainly in the regions of Kutchh and Kathiawar. This form incorporates an extensive use of dance to narrate a series of small plays, known as Veshha or Swanga, each with its own plot. The theme of the play is generally romantic.
- Daskathia is a form of folk theatre popular in the region of Odisha.
- Kariyila is another form of open-air theatre that is popular in the foothills of Himachal

Pradesh. Generally staged during village fairs and festivals, the performance occurs through the night and comprises of a series of small plays and skits.

- Maach is the folk theatre of the region of Malwa in Madhya Pradesh. It originated in Ujjain around 17th century A.D. and was based on mythological themes. Later, romantic folk tales were included into its repertoire. The unique feature of this form is the dialogues, which are delivered in the form of couplets known as Rangat Dohas.

## 28. Correct Option: (d)

### Explanation

- The following criteria were laid down to determine the eligibility of languages to be considered for classification as a "Classical Language".
  - High antiquity of its early texts/ recorded history over a period of 1500–2000 years;
  - A body of ancient literature/texts, which is considered a valuable heritage by generations of speakers;
  - The literary tradition be original and not borrowed from another speech community;
  - The classical language and literature being distinct from modern, there may also be a discontinuity between the classical language and its later forms or its offshoots.
- Languages so far declared to be Classical language are:
  - **Tamil** in the year 2004
  - **Telugu** in the year 2008
  - **Malayalam** in the year 2013
  - **Sanskrit** in the year 2005
  - **Kannada** in the year 2008
  - **Odia** in the year 2014

## 29. Correct Option: (d)

### Explanation

- The **Portuguese** brought with them the Iberian style of architecture. They initially built trading posts and ware houses, which were later remodelled into fortified town along the coastlines



- The **French** brought the concept of urban city planning with them. The French towns of Pondicherry and Chandernagore (now Chandannagar, West Bengal) were built using **the Cartesian grid plans and scientific architectural designs**.
- The British brought with them the **Gothic style** of architecture. It merged with the Indian architecture and resulted in the Indo-Gothic style of architecture. *Post-1911*, a new style of architecture known as the **Neo-Roman architecture** emerged.

### 30. Correct Option: (a)

#### Explanation

- Modhera Sun Temple                      Gujarat
- Konark                      Temple                      Odisha
- Dakshinaark Temple    Bihar
- Martand Sun Temple    Kashmir

### 31. Correct option: (a)

#### Explanation:

#### Vishishtadvaita (Qualified Non-dualism)

- **Statement 3 is incorrect:** Its proponent was **Rāmānuja**.
- The basic theory is that "**jīvātman is a part of Brahman**", and hence is similar, but not identical. Brahman, matter and the individual souls are distinct but mutually inseparable entities".
- **Statement 1 is correct:** Vishishtadvaita advocates **Bhakti to attain God**.
- It is one of the most popular schools of the Vedanta school of Hindu philosophy.
- Vedanta literally means the end of the Vedas.
- **Statement 2 is correct:** VishishtAdvaita (literally "Advaita with uniqueness; qualifications") is a **non-dualistic school** of Vedanta philosophy.
- It is non-dualism of the qualified whole, in which Brahman alone exists, but is characterized by multiplicity.
- It can be described as **qualified monism or qualified non-dualism or attributive monism**.
- It is a school of Vedanta philosophy which believes in all diversity subsuming to an underlying unity.

- Ramanuja, the main proponent of Vishishtadvaita philosophy contends that the **Prasthanatrayi ("The three courses")**, namely the Upanishads, the Bhagavad Gita, and the Brahma Sutras are to be interpreted in a way that shows this unity in diversity, for any other way would violate their consistency.
- There are three key principles of Vishishtadvaita:
  - **Tattva:** The knowledge of the 3 real entities namely, jiva (living souls; the sentient); ajiva (the nonsentient) and Ishvara (Vishnu-Narayana or Parahbrahman, creator and controller of the world).
  - **Hita:** The means of realization, as through bhakti (devotion) and prapatti (self-surrender).
  - **Purushartha:** The goal to be attained, as moksha or liberation from bondage.

### 32. Correct option: (a)

#### Explanation:

#### Kuthiyottam Ritual and Pongala Festival

- **Option (a) is correct:** It is usually performed every year during the Pongala festival at the **Attukal Bhagavathy Temple in Thiruvananthapuram, Kerala**. The temple is popularly known as the "**Women Sabarimala**".
- According to Kerala's Department of Tourism, the **Attukal Pongala festival** is the largest congregation of women for a festival in the world.
- Pongala, which means '**to boil over**', is a ritual in which women prepare a pudding made from rice, jaggery, coconut and plantains cooked together, and offer it to the '**Bhagavathy**', also referred to as '**Attukalamma**' goddess.
- **The ritual can only be performed by women**.
- The Attukal Pongala Mahotsavam is a 10 days festival which falls during **Malayalam month of Kumbham**.
- In 2009, the Attukal Pongala festival entered the Guinness Book of Records as the largest gathering of women.
- Nearly 1,000 young boys undertake a seven-day penance before Pongala day.

- These boys are said to represent the wounded soldiers of the goddess.
- The boys have to observe strict discipline and stay inside the temple for seven days.
- The rigors include sleeping on the floor, strict diet restrictions, and bathing three times a day.
- They also have to prostrate 1,008 times before the deity.
- The ritual reportedly involves piercing the child's side with a small hook and knotting a thread through it to symbolize their bond with the Goddess.

### 33. Correct option: (a)

**Explanation:**

**Mahamastakabhisheka:**

- **Statement 1 is correct:** Mahamastakabhisheka is the head anointing ceremony which is performed **once in 12 years** to the 57 feet tall monolithic statue of **Lord Bahubali (Gomateshwara) at Shravanbelagola, Karnataka**.
- It is one of biggest festivals for Jain community and it honors Lord Bahubali, a revered Jain icon.
- According to Jain texts, Bahubali had attained liberation from cycle of births and deaths (moksha) at **Mount Kailash** and is revered as a liberated soul (Siddha) by Jains.
- **Bahubali is also called Gommateshwara** because of Gommateshwara statue dedicated to him and as **lord Kammateswara** from an inscription.
- **Statement 2 is incorrect:** Gommateshwara statue was built by **Ganga dynasty minister and commander Chavundaraya in around 981 AD**.

### 34. Correct option: (c)

**Explanation:**

**Chithirai Festival**

- **Both the statements are correct:** The Chithirai festival is celebrated every year at the **Meenakshi Temple in Madurai, Tamil Nadu** during the month of April for symbolizing **the unity of saivism and vaishnavism**.

- It does so by re-enacting the wedding of **Lord Sundareswarar (Lord Shiva) and Goddess Meenakshi (Lord Vishnu's sister)**.
- The festival includes a procession of **Kallazhagar avtar of Lord Vishnu** entering **Vaigai River**.
- He travels from his abode in Azhagarmalai to get his sister married to Lord Sundareswarar.
- This journey from his abode to his sister's wedding, on a golden chariot, is the legend behind celebrating the Chithirai Festival.

### Sri Meenakshi Sundareswarar Temple

- It is historic Hindu temple located on **southern bank of Vaigai River** in temple city of **Madurai, Tamil Nadu**.
- It is dedicated to Meenakshi, a form of Parvati, and her consort, Sundareswar, a form of Shiva.
- It was built during reign of **Pandyas**.
- It houses 14 gopurams (gateway towers), ranging from 45–50m in height and tallest is southern tower, 51.9 metres high.
- It also has two golden sculptured vimanas, shrines over garbhagrihas (sanctums) of main deities.
- The Sri Meenakshi Sundareswarar Temple in Madurai (Tamil Nadu) was adjudged as the **cleanest iconic place** in country under **Swachhta Hi Seva (cleanliness is service) programme** in 2017.

### 35. Correct option: (b)

**Explanation:**

**Chardham Yatra**

- As per Hindu traditions, Char Dham Yatra opens the gates of salvation by washing away all the sins.
- The term Chardham is believed to be coined by **Shri Adi Shankaracharya**, which means four abodes of God or Holy Destinations.
- **Statement 1 is incorrect:** The **Yatra begins from Yamunotri**, then the pilgrims head to Gangotri, thereafter to Kedarnath and finally to Badrinath to complete the Chardham Yatra. Yamunotri is the source of the sacred Yamuna River.

- According to Hindu Mythology, Yamuna was the sister of Yamraj and she was promised by Yamraj that whoever takes the holy dip in the Yamuna River will not be taken to Yamlok and they would attain salvation.
- Yamunotri is also the seat of Goddess Yamuna. Gangotri i.e. Gomukh is the birth place of the Holy River Ganga.
- The stone on which King Bhagirath did meditation to bring Goddess Ganga to earth is located near Ganga Temple in Gangotri.
- A temple dedicated to Goddess Ganga is located in this pious area. Kedarnath is one of the twelve jyotirlingas of Lord Shiva and the temple is believed to be restored by Adi Shankaracharya.
- Badrinath is considered as the most sacred among the four shrines and is located on the **left bank of the Alaknanda River**.
- The **temple at Badrinath** is dedicated to **Lord Vishnu**, the protector and preserver of the divine Hindu Trinity (Brahma, Vishnu, and Shiva).
- It is also believed that Adi Shankaracharya got freedom from the process of reincarnation at Badrinath.
- **Statement 2 is correct:** The **Chardham Development Plan** is the project of the **Ministry of Road Transport and Highways**.

### 36. Correct option: (a)

**Explanation:**

#### Harvest Festivals of India

- Option (a) is correct:
- | Harvest Festivals | Concerned State |
|-------------------|-----------------|
| A. Nuakhai        | 3. Odisha       |
| B. Nabanna        | 1. West Bengal  |
| C. Bhogali Bihu   | 2. Assam        |
- **Nabanna:** This is one of the most celebrated **traditions of Bengal**, where new rice is harvested with sheer joy and stocked in homes. Farmers from Bengal cheerfully participate in this harvest ritual in the **Bengali month of Agrahayan** and offer the first grains to Goddess Lakshmi while thanking her for all blessings. It is celebrated in the months of November and December. **Key attractions of Nabanna**

**festival:** Payesh (Kheer) made from the newly harvested rice and Nabanna fair.

- **Nuakhai:** It is an age old harvest celebration in **Odisha**. Locally '**nua**' means new and '**khai**' means food. This is not only a popular harvest festival in India, but also celebrated to appreciate the passing away of the past and evil days while welcoming the new and beautiful with open arms. The festival is also known as **Nuakhai Parab or Nuakhai Bhetghat**. **Key attractions of Nuakhai festival:** The delicious Arsaa Pitha (sweet pancakes).
- **Bhogali Bihu:** Every year in January, the entire state of Assam showcases enthusiasm and delight in celebrating Bhogali Bihu. The farmers of Assam celebrate and cherish the efforts of cultivation and reap the benefits. **The celebration starts one night before with Uruka—the community feast. On the day of Bihu, the mejis or pavilion made of clay and hay are burnt.** Local women wear stunning mukhlas and participate in group songs and dance. Also known as Magh Bihu, this is an exotic and most vibrant name on the list of harvest festivals of India. **Key attractions of Bihu festival:** Bihu dance, bullfight, bird fight and Sunga Pitha, Til Pitha and Laru.

### 37. Correct option: (b)

**Explanation:**

#### Pakke Paga Hornbill Festival (PPHF)

- **Option (b) is correct:** The government of **Arunachal Pradesh** has declared the Pakke Paga Hornbill Festival (PPHF)—the state's only conservation festival, as a "**state festival**".
- The first-ever PPHF was held on January 16–18, 2015.
- The organizers had a number of objectives in mind-
  - to recognise the role played by the resident **Nyishi tribe** in conserving hornbills in the **Pakke Tiger Reserve (PTR)**,
  - to devise alternative sources of income for a region that relies on hunting and logging, and
  - to tell the rest of the country about the wonders of the PTR and its surrounding areas.

- As part of the festival, visitors are treated to cultural programmes, food stalls, plays, sightseeing, river and village walks, bird-watching, screenings of short films as well as local tribal sports and dances.
- **Pakke Tiger Reserve**
  - Pakke Tiger Reserve, also known as **Pakhui Tiger Reserve**, is a Project Tiger reserve in the **East Kameng district of Arunachal Pradesh** in northeastern India.
  - Previously it was declared a Wildlife sanctuary in 2001, and was declared a Tiger Reserve in 2002.
  - This Tiger Reserve has won India Biodiversity Award 2016 in the category of 'Conservation of threatened species' for its Hornbill Nest Adoption Programme.

### 38. Correct option: (b)

**Explanation:**

#### **Sadharna Bhramo Samaj (SBS)**

- It is a general community of worshipers of one God, formed in **May 1878**, traces back its roots to The Brahmo Samaj.
- **Statement 1 is incorrect:** It was formed by the followers of **Keshav Chandra Sen** (Brahmo Samaj India) after he violated the **Brahmo Marriage Act** by marrying his 13 year old daughter with Maharaja of Cooch-Bihar.
- **Anandamohan Bose** was its first President.
- In 1891, it opened the Das Ashram, a welfare institution of untouchables, and the Brahmo Girls School of Calcutta, and also founded small hospitals, orphanages, a leper asylum.
- **Statement 2 is correct:** Its basic principles are:
  - It believes in the existence and personality of God,
  - It believes in the immortality of the human soul.
  - It does not believe in any particular book or collections of books as the one infallible revelation of divine truth, love, and final authority.
  - It does not believe in specific incarnation the Deity.

- It accepts, respects, and uses of scriptures of the world, (not as infallible) as ancient records of the moral and spiritual experiences.
- It is involved in various educational, social, medical and other welfare activities.

### 39. Correct option: (d)

**Explanation:**

#### **Sangeet Natak Akademi (SNA)**

- **Statement 2 is correct** Sangeet Natak Akademi (SNA) launched the second phase of the Web Campaign '**SANJHI-MUJH MEIN KALAKAR**'.
- **Statement 3 is correct** It is an initiative to document and promote the **Intangible Cultural Heritage (ICH)** and diverse cultural traditions of the country by direct public-participation.
  - The literal meaning of the term **SANJHI** is **"to share" and "to partner"**.
  - The first phase of this campaign was earlier initiated in the month of November 2018 during the festival season of Diwali.
- **The Second Phase:**
  - The second phase of this campaign has its main focus area like the folk, traditional, customary, socially events and ritualistic art forms – woven as a cultural fabric around the harvest festival season of January.
  - It is widely celebrated as various nomenclatures like Makar Sankranti, Pongal, Lohri, Bhogali Bihu, Torgya, Uttarayan, Attukkal Pongal, etc.
- It intends to bring forth such forms that are aligned with the domains of intangible cultural heritage as per the Convention of Safeguarding the ICH under UNESCO:
  - Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
  - Performing arts;
  - Social practices, rituals and festival events;
  - Knowledge and practices concerning nature and the universe;
  - Traditional craftsmanship.

#### 40. Correct option: (a)

##### Explanation:

##### PRASAD Scheme

- It was launched in 2014-15 by Union Ministry of Tourism.
- It aims at integrated development of pilgrimage destinations in planned, prioritised and sustainable manner to provide complete religious tourism experience.
- It focuses on the development and beautification of the identified pilgrimage destinations.

##### Objectives:

- Harness pilgrimage tourism for its direct and multiplier effect upon employment generation and economic development.
- Enhance tourist attractiveness in sustainable manner by developing world class infrastructure in the religious destinations.
- It also seeks to promote local art, culture, handicraft, cuisine, etc.

##### Funding:

- Under it, **Ministry of Tourism** provides **Central Financial Assistance (CFA)** to **State Governments** for promoting tourism at identified destinations.
- For components within public funding under this scheme, **Central Government will provide 100% fund.**
- For improved sustainability of project, it also seeks to involve **Public Private Partnership (PPP) and Corporate Social Responsibility (CSR)** as well.
- Union Government has included **Gangotri and Yamunotri in Uttrakhand, Amarkantak in Madhya Pradesh and Parasnath in Jharkhand** under Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive (PRASAD) to develop pilgrimage and heritage destinations in the country. With the new additions, the number of sites under PRASAD has now reached to 41 in 25 states.

#### 41. Correct Option: (d)

##### Explanation

##### Sahitya Akademi Award

1959	Ramdhari Singh Dinkar	Hindi
1960	R.K Narayan	English
1968	Harivansh Rai Bachchan	Hindi
1956	Amrita Pritam	Punjabi
1988	Vikram Seth	English
1975	Kaifi Azmi	Urdu
2004	Ghulam Nabi Firaq	Kashmiri
1967	Buddhadeb Basu	Bengali
2012	K. Satchidanandan	Malayalam

- This is an honour given to those who achieve brilliance in literature. This award was instituted in 1954 and is given by the 'Sahitya Akademi' that is the National Academy of Letters of our country.

#### 42. Correct option: (d)

##### Explanation

##### Vijaynagar School of Temple Architecture

##### The features of the temples were:

- The walls of the temples were highly decorated with carvings and geometrical patterns.
- **Goupurams**, which were previously present on the front side, were now built on all the sides.
- **Monolithic rock pillars**
- Generally, temple pillars have a mythical creature Yali (Horse) engraved in them
- The enclosing walls were larger
- More than one mandaps were built in each temple.
- The central mandap came to be known as kalyan mandap.
- The concept of **secular buildings** inside the temple premises was also introduced during this period.
- Temple complex is enclosed by boundaries
- **Example:** Vittalsami temple, Lotus Mahal, Virupaksha temple in Hampi, Raghunatha Temple in Hampi etc. Rock-cut idol of Narasimha on Shesha (snake) near Hampi is a marvel in itself.



#### 43. Correct Option: (b)

##### Explanation

**Some of the features of Kuchipudi dance are:**

- It involves difficult foot movements, and is generally a team performance.
- Most of the Kuchipudi recitals are based on stories of Bhagwata purana but have a **secular theme**. There is a predominance of **Shringara ras**.
- **The dance involves all three components of classical dances:** Nritta, Nritya and Natya. It is similar to Bharatnatyam but has its own features.
- The Kuchipudi dance style is a manifestation of **the earthly elements** in the human body.
- **Both Lasya and Tandava** elements are important in the Kuchipudi dance form.
- A Kuchipudi recital is generally accompanied with Carnatic music; Violin and Mridangam being the principal instruments. The recital is in Telugu language.

#### 44. Correct Option: (c)

##### Explanation

- This is the oldest school of philosophy and was founded by Kapil Muni who is supposed to have written the *Samkhya Sutra*. The word 'Samkhya' or 'Sankhya' literally means 'count'.
- Samkhya schools argued that salvation could be attained through the acquisition of **knowledge**
- This school believed in **dualism or dvaitavada**, i.e. *the soul and the matter are separate entities*. This concept is the basis of all real knowledge. This knowledge can be acquired through three main concepts:
  - *Pratyaksha*: Perception
  - *Anumana*: Inference
  - *Shabda*: Hearing

#### 45. Correct Option: (c)

##### Explanation

**Guru Nanak (1469-1539)**

- He was born in Talwandi (Pakistan). He had spiritual inclination from childhood.

**He was inspired by Kabir Das and he was the proponent of Nirguna School.**

He emphasized "Nam Japna", that is repeated utterances of God's name to feel his presence. However, it has to be noted that Sikhism is not an extension of Bhakti movement. He also criticized the discriminatory caste practices and wished for equality of all. Everybody irrespective of their caste or creed was welcome to come and have meals in the community kitchens (langars). His teachings can be found in Guru Granth Sahib, the revered Sikh scripture.

#### Chaitanya Mahaprabhu (1486-1534)

- He was an ardent **Krishna devotee** and popularized the chanting of "Hare Rama, Hare Krishna". He made famous the **practice of worshipping Radha and Krishna together**. He gave the **Achintaya Bheda-Abheda** philosophy. He was a Saguna and popularized "*Kirtans*" (religious songs) as a form of worshipping God. He was very popular in Eastern India and lived most of his life in Puri, Odisha. He wrote "*Siksastakam*", a text in Sanskrit, where he elaborated his philosophy.

#### 46. Correct option: (d)

##### Explanation

##### Bhakti Movement

- The Bhakti movement originated in the Southern parts of India, especially Tamil Nadu between 7th and 12th century; it slowly percolated to the northern belt by the end of 15th century.
- In South India, there were two main groups of Bhakti saints: Nayanars (Shiva devotees) and Alvars (Vishnu Devotees) who preached devotion to God as a means of salvation and disregarded the austerities preached by Buddhism and Jainism. Most of their poetries were focused on the love between the devotee and God.
- Ramanand was the first bhakti saint to use Hindi for the propagation of his message in 14<sup>th</sup> Century, which popularized his preaching among local people.

#### 47. Correct Option: (c)

##### Explanation

- The IGNCA is an autonomous institution that concentrates on research,

conservation, display and dissemination of arts. Although they concentrate on the visual and performing art, yet they also promote critical and creative literature.

- The Crafts Council of India or CCI is a non-profit organisation that promotes activities to preserve and develop handicraft industry in India. Kamala Devi Chattopadhyay who wanted to help the craft persons to get regular work and recognition for their craft, established the CCI in 1976. Although their headquarter is located in **Chennai**, they have over ten State Councils that are affiliated to the parent organisation. They achieved a global platform after being affiliated to the World Crafts Council.

#### 48. Correct Option: (b)

##### Explanation

- The Government of India established the "**National Academy of Letters**" or the Sahitya Akademi in **1954**. The primary

function of this organisation was to work as a national organisation to promote literary culture in India, to foster and co-ordinate literature in all the Indian languages and to overall promote the national unity of the country.

- It is an autonomous organisation, which undertakes literary activities in over **24 Indian languages**. Apart from the 22 languages that are mentioned in the Constitution of India, the Sahitya Akademi gives recognition to two more languages: **English** and **Rajasthani**. They have several awards and fellowships that honor the great contribution made to linguistic development by writers
- Bhasha Samman is awarded by Sahitya Akademi for significant contribution to the languages **not recognised by the Akademi**.

#### 49. Correct Option: (d)

##### Explanation

Movement	Founder	Reasons
<b>Ahmadiya Movement</b>	<b>Mirza Ghulam Ahmad</b> who called himself a Mahdi (guide)	It started in Punjab to create a community of people who would uphold true Islamic values.
<b>Faraizi Movement (19th century)</b>	<b>Haji Shariatullah</b> began the movement.	He called for the coming back of pure Islam and urged Muslims to perform the obligatory duties of Islam called Faraiz. He wanted people not to go to saints and follow their rituals.
<b>Tariqh-i- Muhammadiya Movement</b>	Sayyid Ahmad Bareilvi	It was essentially an <b>armed movement</b> to establish a proper Islamic state.
<b>Aligarh Movement</b>	Sir Sayyid Ahmad Khan	He propagated <b>modern education</b> for the Muslims, which would allow them to work with the British, and in turn the Muslims will also prosper.

#### 50. Correct option: (c)

##### Explanation

##### Pattachitra

- A traditional painting of Odisha, the name Pattachitra comes from a Sanskrit word patta, which means canvas/cloth and chitra means picture. The paintings show a mix of classical and folk elements, with a bias towards the latter.

- The base of the painting is treated **cloth** while the colours used comes from natural sources including burnt coconut shells, Hingula, Ramaraja and lamp black. **No pencil** or charcoal is used, rather brush is used to draw the outlines in red or yellow after which the colours are filled. The background is decorated with foliage and flowers and the paintings have an intricately worked frame. Once the final lines are drawn, the



painting is given a **coating of lacquer** to give it a glossy finish.

### **Kalighat Painting**

- In 19th century, Kalighat paintings were done by the rural migrants who settled around the Kalighat temple in the then British capital (Calcutta). Watercolours were used on mill paper using brushes made of calf

and squirrel hair. The painted figures have a plaque-like effect on neutral background given the shaded contours and articulated movements.

- Originally, the paintings depicted religious notes, especially Hindu Gods and Goddesses. Over time, these paintings were used to express social sentiments.

### CURRENT AFFAIRS (ENVIRONMENT)

Time Allowed: 1 Hrs.

Maximum Marks: 100

Roll No.:

#### INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/ discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet.
4. While writing name and Roll No. on the top of the OMR Sheet in appropriate boxes use **"ONLY BLACK BALL POINT PEN"**.
5. This Test Booklet contains **50 items (questions)**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
6. You have to mark all your responses **ONLY** on the separate **OMR Answer Sheet** provided.
7. All items carry equal marks. **(2 marks each)**
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator only the Answer Sheet. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. Penalty for wrong answers:  
THERE WILL BE **PENALTY FOR WRONG ANSWERS MARKED** BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
  - (a) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third of the marks** assigned to that question will be **deducted as penalty**.
  - (b) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (c) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**

**1. Recently, Madhya Pradesh government has sought the revival of Cheetah Reintroduction Project of 2009. Consider the following statements in this regard:**

1. The cheetah has been declared extinct in India.
2. Shahgarh Landscape in Rajasthan was found to be the most suitable area for the cheetahs as its forests are not very dense to restrict the fast movement of the spotted cat.
3. With the reintroduction of the cheetah, these dryland ecosystems of India will have a chance to return to their natural state.

Which of the statements given above is /are correct?

- (a) 3 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**2. Consider the following Statements with reference to the World Sustainable Development Summit 2019:**

1. The World Sustainable Development Summit (WSDS) is the annual flagship event of The Energy and Resources Institute (TERI).
2. WSDS 2019 focussed on the theme, 'Partnerships for a Resilient Planet'.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**3. The Ministry of Environment, Forest and Climate Change, Government of India has launched the "Asiatic Lion Conservation Project". Consider the following statements in this regard:**

1. The total budget of the project will be funded from the Centrally Sponsored Scheme- Development of Wildlife Habitat (CSS-DWH) with the contributing ratio being 50:50 of Central and State share.

2. The last census in the year 2015 showed the population of 1027 Asiatic Lions in Gir Protected Area Network.
3. At present Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

**4. Match the following pairs:**

- |               |   |
|---------------|---|
| A. Ice-sheet  | 1. Permanent floating sheets of ice that connect to a landmass. |
| B. Ice-shelve | 2. Mass of glacial land ice extending more than 50,000 sq km.   |
| C. Ice-berg   | 3. Pieces of ice that formed on land and float in an ocean.     |

Select the correct answer using the code given below:

- (a) A-1; B-2; C-3
- (b) A-2; B-1; C-3
- (c) A-3; B-2; C-1
- (d) A-3; B-1; C-2

**5. Consider the following statements regarding the Trishna Gas Project:**

1. The National Wildlife Board has given its approval for the Trishna Gas project of GAIL which falls in the Trishna Wildlife Sanctuary of Tripura.
2. The National Board for Wild Life is chaired by Union Minister of Environment, Forest and Climate Change.

Which of the statements given above is /are incorrect?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**6. Air pollution is one of the biggest global environmental challenges of today. Consider the following statements with reference to situation of Air pollution in India:**

1. At present, the levels of Sulphur Dioxide, Nitrogen Dioxide and Particulate Matter  $PM_{10}$  are above the prescribed National Ambient Air Quality Standards.
2. The National Clean Air Programme (NCAP), a five-year action plan with 2019 as the first year is launched to tackle the increasing air pollution problem
3. NCAP sets a tentative target of 20-30% reduction in concentrations of  $PM_{10}$  and  $PM_{2.5}$  by 2024, with 2017 as the base year for comparison.

Which of the statements given above is /are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 2 only
- (d) 1, 2 and 3

**7. Consider the following statements regarding various schemes to reduce carbon emission from Farming:**

1. Crop Diversification Scheme is being implemented only in Punjab, Haryana and Western Uttar Pradesh to diversify area from water guzzling crop like paddy to alternate crops like maize, pulses, oilseeds, cotton & agro-forestry plantation.
2. Bringing Green Revolution to Eastern India (BGREI) is being implemented in seven eastern states namely Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, West Bengal and eastern Uttar Pradesh to address the constraints limiting the productivity of rice based cropping systems.
3. The Paramparagat Krishi Vikas Yojana (PKVY) is being implemented in 7 North Eastern States for development of certified organic production in a value chain mode to link growers with consumers.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 3 only

(c) 1 and 2 only

(d) 2 and 3 only

**8. Recently, Palu city in the Indonesian island of Sulawesi, was hit by a Tsunami. Consider the following statements in this regard:**

1. This Tsunami was the result of Vertical Movement in the Earth's Crust.
2. The shape of the Palu Bay played a role in amplification of force of wave.
3. The retreating of Sea water is an important warning sign of a Tsunami.

Which of the above statements is / are correct?

- (a) 2 and 3 only
- (b) 2 only
- (c) 1 and 2 only
- (d) 1 and 3 only

**9. The 24<sup>th</sup> Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) took place in Katowice Poland in 2018. Consider the following statements in this regard:**

1. Nations have agreed to converge on a Rule Book that will specify how countries will agree to take forward commitments taken at the 21<sup>st</sup> COP in Paris.
2. All the members of the conference have unanimously welcomed the Intergovernmental Panel on Climate Change (IPCC) report on 1.5°C.
3. Poland is not a landlocked Country.

Which of the statements given above is /are correct?

- (a) 3 only
- (b) 1 and 3 only
- (c) 1 and 2 only
- (d) 2 only

**10. Consider the following statements regarding Akademik Lomonosov:**

1. It is world's first floating Solar Power Plant made Operational by Russia.
2. Russia will primarily use it to power oil rigs in remote areas of Arctic region where Russia is pushing to drill for oil and gas.

Which of the statements given above is /are incorrect?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**11. Which of the following Particularly Vulnerable Tribal Groups (PVTGs) are not found in Andaman and Nicobar Islands?**

- 1. Great Andamanese
- 2. Onge
- 3. Shompens
- 4. Juang
- 5. Sentinele
- 6. Nicobarese

Select the correct answer using the code given below:

- (a) 2 and 5 only
- (b) 3 and 4 only
- (c) 4 only
- (d) 1, 6 and 4 only

**12. Zoological Survey of India (ZSI) has published a report titled: 'Faunal Diversity of Bio-geographic Zones: Islands of India'. Consider the following statements in this regard:**

- 1. Andaman and Nicobar Islands, which comprises of 572 islands is home to more than 10% of country's fauna species.
- 2. 11° channel separates Andaman and Nicobar islands.
- 3. Zoological Survey of India publishes Red Data book on Indian Flora and Fauna.

Which of the above statements is /are correct?

- (a) 1 only
- (b) 1 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

**13. Consider the following statements with reference to Soil Biodiversity:**

- 1. Soil biodiversity is the variety of life that exists within the soil, including bacteria, fungi, earthworms and termites.
- 2. As per the Global Soil Biodiversity Atlas prepared by Wildlife Institute of India (WII), India faces a grave danger to soil biodiversity.

Which of the statements given above is /are incorrect?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**14. Consider the following statements regarding Shifting Cultivation:**

- 1. Shifting cultivation is an agricultural system in which a piece of land is cleared and then abandoned followed by several years of farming until the soil loses fertility.
- 2. Shifting Cultivation is also known as Jhum Cultivation in Southern States of India
- 3. This practice increases surface run off of rainwater leading to soil erosion.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**15. Consider the following statements regarding Black Carbon:**

- 1. Black carbon is a component of particulate matter formed by the incomplete combustion of fossil fuels, wood and other fuels.
- 2. Black carbon is a long-lived climate pollutant with a lifetime of several years.
- 3. When deposited on ice and snow, black carbon and co-emitted particles increases the surface albedo.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**16. Consider the following statements regarding Glacial Lakes:**

1. A Glacial Lake Outburst Flood (GLOF) is a release of melt water from a moraine.
2. Moraines are elongated, teardrop-shaped hills of rock, sand, and gravel that formed under moving glacier ice
3. Kedarnath Tragedy was caused by a GLOF

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

**17. Consider the following statements regarding Carbon Sinks:**

1. A carbon sink is anything that absorbs more carbon than it releases as carbon dioxide.
2. India has committed a target of creating an additional carbon sink equivalent to 2.5 billion to 3 billion tonnes carbon dioxide by 2030 in COP 24.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**18. Consider the following statements regarding Zero Budget Natural Farming:**

1. It is a Farming practice, very similar to Organic Farming that believes in natural growth of crops without adding any fertilizers and pesticides or any other foreign elements.
2. Under this practice, the farmers are going to have no costs at all.
3. The four pillars of ZBNF are: Jeevamrutha-a fermented microbial culture; Beejamrutha-a treatment used for seeds; Acchadana – Mulching and Whapasa – moisture.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

**19. Recently, Mangalajodi Ecotourism Trust has won prestigious United Nations World Tourism Organisation (UNWTO) Award. Consider the following statements in this regard:**

1. Mangalajodi Ecotourism Trust is government owned and managed venture on banks of Chilika Lake in Odisha.
2. Chilika Lake is the 2<sup>nd</sup> largest coastal lagoon in India after Pulikat Lake.
3. Lagoons are shallow bodies of water that provide access to the sea.
4. The headquarter of World Tourism Organization is located in Geneva, Switzerland.

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 1, 3 and 4 only
- (c) 3 only
- (d) 2, 3 and 4 only

**20. Consider the following Statements regarding Floating Treatment Wetlands:**

1. Floating Treatment Wetlands are small artificial platforms which are useful for the removal of contaminants from the Freshwater Lakes.
2. They work on the process of Bioremediation.
3. Recently, a Floating Treatment Wetland (FTW) was inaugurated on World Wetlands Day in Nekkannampur Lake in Bangalore.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 1, 2 and 3
- (d) None

**21. Consider the following statements regarding Olive Ridley Turtles:**

1. They are most abundant of all sea turtles found in the world.
2. Olive Ridley Turtle is recognized as Vulnerable by IUCN Red list.
3. The government of Orissa has declared Rushikulya rookery a Protected Area due to the consistent arrival of lakhs and lakhs of Olive Ridley turtles.

Which of the statements given above is /are correct?

- (a) 2 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**22. A two day international conference on Sustainable Biofuels was jointly organized by Government of India and Biofuture platform. Consider the following statements in this regard:**

1. Mission Innovation (MI) is a global initiative to accelerate global clean energy innovation with the objective to make clean energy widely affordable.
2. Ministry of New and Renewable Energy is the nodal agency coordinating and steering the activities of Mission Innovation in India
3. Fourth-generation biofuels are a carbon negative source of fuel.

Which of the statements given above is /are correct?

- (a) 2 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**23. As per the Draft National Forest Policy 2018, released by Ministry of Environment, Forest and climate Change, Which of the following statements is/are correct?**

1. The current adopted Forest Policy of India is National Forest Policy, 1952.
2. The new draft Forest Policy seeks to establish a National Board of Forestry and State Boards of Forestry.

3. India's total forest and tree cover is around 35% of the Total geographical area of the country.

Select the correct answer using the code given below:

- (a) 2 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

**24. Consider the following statements with reference to National Biogas and Manure Management Programme (NBMMP).**

1. It is a Central Sector Scheme.
2. The scheme provides for setting up of Family Type Biogas Plants mainly for rural and semi-urban households
3. The process of biogas generation is called Anaerobic digestion (AD).

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**25. Recently, the United Nations World Water Development Report (WWDR) 2018 was released. Consider the following statements in this regard:**

1. The development of the WWDR is coordinated by the World Water Assessment Programme (WWAP), a joint effort of the UN agencies and entities which make up UN-Water
2. UN Water is the single UN entity dedicated exclusively to water issues.
3. The report highlights that Global demand for water has increased six-fold over the past 100 years and continues to grow at the rate of 1% each year.

Which of the above statements is /are correct?

- (a) 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 2 and 3 only



**26. Consider the following statements regarding the One Planet One City Challenge:**

1. It's a friendly competition, organized by World Wide Fund for Nature (WWF) to mobilize cities to deliver on the Paris Agreement.
2. The logo of WWF is a Black and White Rhinoceros.
3. Pune was selected as National Winner in 2017-2018 edition of WWF's One Planet City Challenge (OPCC).

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 2 and 3 only

**27. Consider the following statements with reference to Solar Geo Engineering:**

1. Solar Geo-engineering is a theoretical approach to reflect some amount of inbound sunlight back out into space.
2. Most countries are willing to implement Solar Geo Engineering Methods like Stratospheric aerosol injection, Marine cloud brightening as these methods have negligible harmful effects.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**28. Around 100 people were recently killed by a massive dust storm in the Northern Part of India. With reference to it, consider the following statements:**

1. Dust Storms are an ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.
2. According to Meteorologists, it was an intense upward movement of air, known as upburst which produced strongest wind gust.

3. Another main reason for the dust storms to be catastrophic was because the wind hit at night.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**29. Consider the following statements regarding Suva Expert Dialogue which took place recently:**

1. The dialogue was organised to minimize and address the loss and damages associated with the adverse effects of Shipping Activities.
2. It took place in Bonn, Germany.
3. The Expert Dialogue was set up in response to request made by developing countries in Conference of Parties 23<sup>rd</sup> meet (COP23).

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 2 and 3 only

**30. Consider the following statements with reference to SAWEN, an intergovernmental Agency.**

1. SAWEN is an inter-governmental Weather forecasting Network of South Asian countries.
2. All the members of SAARC are members of SAWEN.
3. SAWEN Secretariat is located in Kathmandu, Nepal.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

**31. Consider the following statements with reference to Composite Water Management Index 2018:**

1. It is developed by Ministry of Drinking water and Sanitation to assess and improve the performance of States/ Union Territories in efficient management of water resources.
2. The reporting states have been divided into two special groups – 'North Eastern and Himalayan states' and 'Other States'.
3. The report ranks Gujarat as number one in the reference year (2016-17) and in North Eastern and Himalayan States, Himachal Pradesh has been adjudged number 1 in 2016-17.

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**32. Consider the following statements regarding Dead Zones:**

1. Dead Zones or Hypoxia are areas in the ocean of very high Salinity in which animal life suffocates and dies.
2. Recently, scientists have found a huge dead zone in Bay of Bengal

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**33. Consider the following statements regarding the National Disaster Risk Index:**

1. It is made by the Union Home Ministry with support from the United Nations Development Programme (UNDP).
2. Maharashtra has been ranked at the top of the list of Indian states, vulnerable to natural disasters
3. Among the Union Territories, Puducherry is the most vulnerable to such disasters.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

**34. Consider the following statements regarding impact of climate change in South Asia:**

1. Asian Development Bank has recently released South Asia's Hotspots Report to assess the Impact of climate change on Living Standards in South Asian Region.
2. The report identifies climate "hotspots" as a small area of the Earth's crust where an unusually high heat flow is associated with volcanic activity.
3. As per the Report, if preventive measures are taken along the lines of the Paris Agreement, India's average annual temperatures are expected to rise by 1-2°C by 2050.

Which of the statements given above is /are correct?

- (a) 1 and 3 only
- (b) 1 and 2 only
- (c) 3 only
- (d) 1, 2 and 3

**35. The India Meteorological Department (IMD) has recently launched new Ensemble Prediction Systems (EPS) to provide probabilistic weather forecasts. Consider the following statements in this regard:**

1. The new systems have a resolution of 12 km Grid Scale, which is currently 23 km scale grid.
2. The EPS involves the generation of multiple forecasts using slightly varying initial conditions.
3. India Meteorological Department comes under the Ministry of Science and Technology.

Which of the statements given above is /are correct?

- (a) 2 only
- (b) 2 and 3 only

(c) 1 and 2 only

(d) 1, 2 and 3

**36. According to recent study, arsenic contamination in paddy is rising from ground water in West Bengal. Consider the following statements in this regard:**

1. Arsenic occurs naturally in the environment in both organic and inorganic forms.
2. According to WHO, Maximum contaminant level (MCL) for arsenic in drinking water is 50 parts per Billion (ppb).
3. Arsenic cannot be removed by boiling the water.

Which of the statements given above is /are correct?

(a) 1 only

(b) 2 only

(c) 2 and 3 only

(d) 1 and 3 only

**37. Consider the following statements with reference to the Magnetic Field of the Earth:**

1. Earth's magnetic field is caused due to the differential rate of spinning of Inner and Outer Core.
2. It takes around 200,000 to 300,000 years for Earth's magnetic field to flip polarity.
3. The reversal of the Magnetic Polarity of Earth could lead to its Destruction.

Which of the statements given above is /are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

**38. International Union of Geological Sciences (IUGS) has officially accepted the new phase in Earth's geological history and designated it as Meghalayan Age. Consider the following statements in this regard:**

1. It has been named after a stalactite which was found from a cave in the Indian state of Meghalaya that helped define climatic events 4,200 years ago.

2. It is the first interval in Earth's geological history that coincided with a major cultural event.

3. The IUGS is an inter-governmental organization devoted to international cooperation in the field of geology.

Which of the statements given above is /are correct?

(a) 1 and 2 only

(b) 1 only

(c) 2 and 3 only

(d) 1, 2 and 3

**39. Consider the following statements regarding the recently launched Deep Ocean Mission:**

1. It is launched by Union Ministry of Earth Sciences.
2. Exclusive Economic Zone of a concerned country extends from the baseline to 120 nautical miles from the coast.
3. A Submersible Vehicle and a Desalination plant are the two key projects planned under Deep Ocean Mission.

Which of the statements given above is /are correct?

(a) 3 only

(b) 1 and 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

**40. India has prepared its National REDD+ Strategy in line with its commitment to Paris Agreement on Climate Change. Consider the following Statements in this regard:**

1. The strategy report has been prepared by Indian Institute of Forest Management, Bhopal.
2. REDD+ simply means, "Reducing Emission from Deforestation and Forest Degradation".

Which of the statements given above is /are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

**41. With reference to the Brazzaville Declaration, consider the following statements:**

1. It is aimed to protect the Peruvian Amazon region in South America, world's largest tropical peatland.
2. Democratic Republic of Congo (DRC) and the Republic of Congo have jointly signed the declaration.
3. Peatlands are wetlands that contain a mixture of decomposed organic material, partially submerged in a layer of water, lacking oxygen

Which of the statements given above is /are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 3 only
- (d) 1, 2 and 3

**42. An IISc study claims that Heat Waves have increased in frequency in the recent decades in India, consider the following statements in this regard:**

1. A Heat Wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the South-Eastern parts of India.
2. Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for plains, 37°C or more for coastal stations at least 30°C or more for hilly regions.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**43. Consider the following statements with reference to Flammable Ice:**

1. Flammable ice (also known as methane hydrate) consists of methane trapped within water crystals.
2. Methane Hydrate is highly flammable and energy intensive Fuel.
3. India has successfully produced natural gas from methane hydrate in an experimental project in the Indian Ocean.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 1, 2 and 3
- (d) None

**44. Consider the following statements regarding El Nino:**

1. During El Nino year, a surface low pressure develops in the region of northern Australia and Indonesia and a high pressure system over the coast of Peru.
2. El Nino and Indian monsoon are inversely related.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**45. Consider the following statements regarding Cyclone Mora:**

1. Cyclone Mora got its name from Thailand
2. It was a result of a deep depression developed in the Bay of Bengal
3. Life period of a tropical cyclone over the north Indian Ocean is 5-6 days

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

**46. Consider the following Statements:**

1. The Central Government has approved the development of a Turtle Sanctuary along with a River Biodiversity Park in Kanpur, under Namami Gange Programme.
2. National Ganga River Basin Authority (NGRBA) is the implementation arm of the National Mission for Clean Ganga (NMCG) under the Environment Protection Act 1986.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**47. Consider the following statements:**

1. United Nation (UN) Water released the annual World Water Development Report 2018, titled 'Waste Water – The Untapped Resource'
2. UN Water is the only single UN entity dedicated exclusively to water issues.

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**48. Consider the following Statements regarding Persistent Organic Pollutants (POPs):**

1. Persistent Organic Pollutants (POPs) are organic substances that remain intact for exceptionally long periods of time and are toxic to both humans and wildlife
2. POPs bio-magnify throughout the food chain and bio-accumulate in organisms.
3. Rotterdam Convention is a global treaty to protect human health and the environment from harmful effects of POPs

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 1 and 2 only

- (c) 3 only
- (d) 1, 2 and 3

**49. Consider the following statements:**

1. 8<sup>th</sup> Regional 3R Forum in Asia and the Pacific was held in Cuttack, Odisha, India.
2. It was co-organized by Ministry of Housing and Affairs, Japan's Environment Ministry, and United Nations Centre for Regional Development (UNCRD).
3. It was launched with objective of integrating 3Rs– reduce, reuse and recycle in policy, planning and development.

Which of the statements given above is /are correct?

- (a) 2 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) None

**50. Consider the following statements:**

1. 16<sup>th</sup> biennial International Energy Forum Ministerial Meeting (IEF16) 2018 was hosted in New Delhi
2. The theme chosen for IEF16 Ministerial was 'Global Energy Transition an Enhanced Role for the Dialogue'.
3. IEF's Secretariat is headquartered at Riyadh, Saudi Arabia

Which of the statements given above is /are correct?

- (a) 2 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) 1 and 3 only

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## **CURRENT AFFAIRS (ENVIRONMENT)**

### ***Answer Key***

<b>Q. 1</b>	<b>(b)</b>	<b>Q. 14</b>	<b>(c)</b>	<b>Q. 27</b>	<b>(a)</b>	<b>Q. 40</b>	<b>(d)</b>
<b>Q. 2</b>	<b>(a)</b>	<b>Q. 15</b>	<b>(a)</b>	<b>Q. 28</b>	<b>(c)</b>	<b>Q. 41</b>	<b>(c)</b>
<b>Q. 3</b>	<b>(c)</b>	<b>Q. 16</b>	<b>(a)</b>	<b>Q. 29</b>	<b>(d)</b>	<b>Q. 42</b>	<b>(b)</b>
<b>Q. 4</b>	<b>(b)</b>	<b>Q. 17</b>	<b>(c)</b>	<b>Q. 30</b>	<b>(d)</b>	<b>Q. 43</b>	<b>(b)</b>
<b>Q. 5</b>	<b>(c)</b>	<b>Q. 18</b>	<b>(c)</b>	<b>Q. 31</b>	<b>(b)</b>	<b>Q. 44</b>	<b>(b)</b>
<b>Q. 6</b>	<b>(b)</b>	<b>Q. 19</b>	<b>(c)</b>	<b>Q. 32</b>	<b>(b)</b>	<b>Q. 45</b>	<b>(d)</b>
<b>Q. 7</b>	<b>(c)</b>	<b>Q. 20</b>	<b>(b)</b>	<b>Q. 33</b>	<b>(b)</b>	<b>Q. 46</b>	<b>(d)</b>
<b>Q. 8</b>	<b>(a)</b>	<b>Q. 21</b>	<b>(b)</b>	<b>Q. 34</b>	<b>(c)</b>	<b>Q. 47</b>	<b>(d)</b>
<b>Q. 9</b>	<b>(b)</b>	<b>Q. 22</b>	<b>(c)</b>	<b>Q. 35</b>	<b>(c)</b>	<b>Q. 48</b>	<b>(b)</b>
<b>Q. 10</b>	<b>(a)</b>	<b>Q. 23</b>	<b>(a)</b>	<b>Q. 36</b>	<b>(d)</b>	<b>Q. 49</b>	<b>(b)</b>
<b>Q. 11</b>	<b>(c)</b>	<b>Q. 24</b>	<b>(d)</b>	<b>Q. 37</b>	<b>(b)</b>	<b>Q. 50</b>	<b>(d)</b>
<b>Q. 12</b>	<b>(a)</b>	<b>Q. 25</b>	<b>(c)</b>	<b>Q. 38</b>	<b>(c)</b>		
<b>Q. 13</b>	<b>(b)</b>	<b>Q. 26</b>	<b>(a)</b>	<b>Q. 39</b>	<b>(c)</b>		

### 1. Correct Option: (b)

#### Explanation:

- **Statement 1 is correct:** A Cheetah is a big cat and is a member of the family **Felidae**. The cheetah was declared **extinct in India in 1952**. It is the **only large mammal** to have **been declared extinct** in our country in recorded history.
- **Statement 2 is incorrect:** **Nauradehi Sanctuary of Madhya Pradesh** was found to be the most suitable area for the cheetahs as its **forests are not very dense** to restrict the fast movement of the spotted cat. Besides, the **prey base for cheetahs is also in abundance** at the sanctuary.
- **Statement 3 is correct:** The cheetah is the **flagship species of the grasslands, scrublands and open forests**. Therefore, with the reintroduction of the cheetah, these dryland ecosystems of India will have a chance to return to their natural state. **Wildlife Institute of India** started this ambitious **Cheetah Reintroduction Project in 2009**. The project focused on **relocating cheetah from Namibia in Africa to Nauradehi sanctuary in Madhya Pradesh**.

### 2. Correct Option: (a)

#### Explanation:

- **Statement 1 is correct:** The **World Sustainable Development Summit** is the annual flagship event of **The Energy and Resources Institute (TERI)**. World Sustainable Development Summit is continuing the legacy of **Delhi Sustainable Development Summit (DSDS)** which was initiated in 2001 with the aim of making 'sustainable development' a globally shared goal.
- **Statement 2 is incorrect:** WSDS 2019 will focus on the theme, '**Attaining the 2030 Agenda: Delivering on our Promise**'. **TERI is an independent, multi-dimensional organization**, with capabilities in research, policy, consultancy and implementation. It aims to **usher transitions to a cleaner and sustainable future** through the conservation and efficient use of Earth's resources.

### 3. Correct Option: (c)

#### Explanation:

- **Statement 1 is incorrect:** Asiatic Lions are listed as '**Endangered**' under the IUCN

Red List. The Ministry of Environment, Forest and Climate Change, India has launched the "Asiatic Lion Conservation Project" with an aim **to protect and conserve the world's last ranging free population of Asiatic Lion** and its associated ecosystem. The total budget of the project for 3 years will be funded from the **Centrally Sponsored Scheme-Development of Wildlife Habitat (CSS-DWH)** with the contributing ratio being **60:40 of Central and State share**.

- **Statement 2 is incorrect:** The last census in the year 2015 showed the population of **523 Asiatic Lions in Gir Protected Area Network**.
- **Statement 3 is correct:** At present **Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion**.

### 4. Correct Option: (b)

#### Explanation:

- **Ice sheet** is a **mass of glacial land ice extending more than 50,000 square kilometers** (20,000 square miles). The two ice sheets on Earth today cover most of Greenland and Antarctica. If the **Greenland Ice Sheet melted**, scientists estimate that sea level would **rise about 6 meters** (20 feet). If the **Antarctic Ice Sheet melted**, sea level would rise by **about 60 meters** (200 feet)
- Ice shelves are permanent floating sheets of ice that connect to a landmass. Most of the world's ice shelves hug the coast of Antarctica.
- Icebergs are pieces of ice that formed on land and float in an ocean or lake. Icebergs **come in all shapes and sizes, from ice-cube-sized chunks to ice islands the size of a small country**. The **North Atlantic and the cold waters surrounding Antarctica** are home to most of the icebergs on Earth.

### 5. Correct Option: (c)

#### Explanation:

- **Statement 1 is incorrect:** The **National Wildlife Board** has given its approval for the Trishna Gas project of **ONGC** which falls in the **Trishna Wildlife Sanctuary** in the Gomati district of **Tripura**. ONGC has discovered **10-12 gas bearing wells** in the Trishna Wildlife sanctuary.

- **Statement 2 is incorrect:** National Board for Wild Life is a statutory organization constituted under the **Wildlife Protection Act, 1972**. It is an apex body to review all wildlife-related matters and **approves projects in and around national parks and sanctuaries**. The National Board for Wild Life is **chaired by the Prime Minister, Union Minister of Environment, Forest and Climate Change is the vice-chairman of the Board**.

## 6. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** The levels of sulphur dioxide and Nitrogen Dioxide are within the prescribed National Ambient Air Quality Standards but the levels of **PM<sub>10</sub> exceed** the prescribed National Ambient Air Quality Standards in most of the cities.
- **Statement 2 is correct:** National Clean Air Programme (NCAP) was launched by Union Minister of Environment, Forest and Climate Change. **Collaborative and participatory approach** involving relevant **Central Ministries, State Governments, local bodies** forms the crux of the Programme. The NCAP will be a mid-term, **five-year action plan with 2019 as the first year**.
- **Statement 3 is correct:** NCAP sets the tentative national level target of **20%–30% reduction of PM<sub>2.5</sub> and PM<sub>10</sub> concentration by 2024** taking **2017 as the base year** for the comparison of concentration.

## 7. Correct Option: (c)

Explanation:

- **Statement 1 is correct:** Crop Diversification Programme (CDP), a sub scheme of Rashtriya Krishi Vikas Yojna (RKVY), is being implemented in the Original Green Revolution States of **Punjab, Haryana and Western Uttar Pradesh** from 2013-14 to **diversify area from water guzzling crop like paddy to alternate crops like maize, pulses, oilseeds, cotton & agro-forestry plantation**. It has been continued in 2014-15
- **Statement 2 is correct:** Bringing Green Revolution to Eastern India (BGREI),

a sub-scheme of Rashtriya Krishi Vikas Yojna (RKVY) is being implemented in seven eastern states namely Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, West Bengal and eastern Uttar Pradesh from 2010-2011 to address the constraints limiting the productivity of **rice based cropping systems**

- **Statement 3 is incorrect:** The Paramparagat Krishi Vikas Yojana (PKVY), launched in 2015, is an extended component of Soil Health Management (SHM) under the **Centrally Sponsored Scheme (CSS)**, National Mission on Sustainable Agriculture (NMSA). PKVY aims at **supporting and promoting organic farming**, in turn **resulting in improvement of soil health**. It is being implement in whole of India.

## 8. Correct Option: (a)

Explanation:

- **Statement 1 is incorrect:** Tsunamis more commonly follow vertical movement in the crust, which disrupts the overlying water and can generate massive waves crashing onshore. But the 7.5-magnitude earthquake appears to be the result of what's known as a strike-slip fault, which takes place as two blocks of crust grind against one another, largely in a horizontal direction.
- **Statement 2 is correct:** The narrow shape of Palu bay concentrated and amplified the force of the wave. It funneled the energy and concentrate it at the tip and that focused the tsunami. It is also a very a deep bay, which means the tsunami could move at high speed.
- **Statement 3 is correct:** A tsunami's trough, the low point beneath the wave's crest, often reaches shore first. When it does, it produces a vacuum effect that sucks coastal water seaward and exposes harbor and sea floors. This retreating of sea water is an important warning sign of a tsunami, because the wave's crest and its enormous volume of water typically hit shore five minutes or so later.

## 9. Correct Option: (b)

Explanation:

- **Statement 1 is correct:** The **2018 United Nations Climate Change Conference**

that took place between 2 and 15 December 2018 in **Katowice, Poland**, is the **24th** Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24). One of the main outcome of **COP24** is that **Nations will try to converge on a rule book** that will specify how countries will agree to take forward commitments taken at the 21st COP in Paris. This '**rulebook**' can be called as the detailed "**operating manual**" of the 2015 Paris Agreement.

- **Statement 2 is incorrect:** The members of the conference **did not agree to "welcome"** the Intergovernmental Panel on Climate Change (IPCC) report on 1.5°C. The **US, Saudi Arabia, Russia and Kuwait refused to "welcome" the IPCC report**
- **Statement 3 is correct:** Poland is bordering **Germany** to the west, the **Czech Republic and Slovakia** to the south, **Ukraine and Belarus** to the east, and **Lithuania and the Russian** enclave of Kaliningrad to the northeast. Its **northern frontier constitutes the Baltic Sea**.

#### 10. Correct Option: (a)

**Explanation:**

- **Statement 1 is incorrect:** Russia's **Akademik Lomonosov**, the world's **first floating nuclear power plant (FNPP)** has become operational. It is constructed by a nuclear power firm **Rosatom**. For power generation, it has **been fitted with two modified KLT-40 naval propulsion nuclear reactors (each of 35 MW capacity)** together providing up to **70 MW of electricity and 300 MW of heat**. It is **named after Russian Academician Mikhail Lomonosov**.
- **Statement 2 is correct:** The **low-capacity, mobile (floating) nuclear power plant** can produce enough electricity to power town of 200,000 residents living in Russia's far-flung **northernmost Arctic region** where **large amounts of electricity is not needed** and construction of **conventional power station** based on coal, gas and diesel is **complicated and costly**. It can save upto 50,000 tonnes of carbon dioxide emissions per year. The project is part of **Russia's greater aims to secure rich deposits of oil and gas in North Pole region in Arctic**.

#### 11. Correct Option: (c)

**Explanation:**

- The population of the Andaman and Nicobar islands includes **six particularly vulnerable tribal groups (PVTGs)** — **Great Andamanese, Onge, Jarawa, Sentinelese, Nicobarese and Shompens**.
- **Juang** is a PVTG belonging to the **State of Odisha**.
- **Particularly Vulnerable Tribal Groups:** 75 tribal groups have been categorized **categorized by Ministry of Home Affairs** as Particularly Vulnerable Tribal Groups (PVTGs). PVTGs reside in **18 States and UT of A&N Islands**. The **Ministry of Tribal Affairs implements the Scheme of "Development of Particularly Vulnerable Tribal Groups (PVTGs)" exclusively for them**.

#### 12. Correct Option: (a)

**Explanation:**

- **Statement 1 is correct:** Andaman and Nicobar Islands comprises of **572 islands, islets and rocky outcrops**. It comprises **only 0.25% of India's geographical area** but is home to more than **10% of country's fauna species**. Thus, presence of such large number of species in such small area makes A&N Islands one of the richest ecosystems and biodiversity hot spots in India.
- **Statement 2 is incorrect:** Ten degree Channel separates the islands of Andaman and Nicobar.
- **Statement 3 is incorrect:** **Zoological Survey of India (ZSI)** and **Botanical Survey of India (BSI)** under the Ministry of Environment, Forest and Climate Change conduct surveys of threatened and important species of **fauna and flora respectively** of the country. **Zoological Survey of India (ZSI)** is India's apex organization on **animal taxonomy**. Its objective is to promote survey, exploration, research and documentation on various aspects of animal taxonomy in Indian subcontinent.

#### 13. Correct Option: (b)

**Explanation:**

- **Statement 1 is correct:** Soil biodiversity is the **variety of life that exists within**

the soil, including bacteria, fungi, earthworms and termites. A **teaspoon of topsoil** typically contains a vast range of different species and up to **6 billion microorganisms**. The maintenance of soil biodiversity is essential to both the environment and to agricultural industries.

- **Statement 2 is incorrect:** According to recently released **Global Soil Biodiversity Atlas** prepared by **World Wide Fund for Nature (WWF)**, India among nations that face grave danger to soil biodiversity. The atlas was released as part of **WWF's biennial Living Planet Report (LPR) 2018**. **India's soil biodiversity is in grave peril** according to the report. The **key aspect of this year's report** was **threat to soil biodiversity** and **pollinators**, the two key drivers of biodiversity.
- **World Wide Fund for Nature (WWF)** is **international non-governmental organization** working field of the **wilderness preservation and reduction of human impact on the environment**. It is world's largest conservation organization with over five million supporters worldwide, working in more than 100 countries.

#### 14. Correct Option: (c)

**Explanation:**

- **Statement 1 is correct:** Shifting cultivation is an agricultural system which involves **clearing of a piece of land followed by several years of wood harvesting** or farming until the soil loses fertility. Once the land becomes **inadequate for crop production**, it is **left to be reclaimed by natural vegetation**, or sometimes converted to a different long term cyclical farming practice. This system of agriculture is **often practised at the level of an individual or family**.
- **Statement 2 is incorrect:** In north east India, it is called as jhum cultivation.

Jhum	North-eastern India
Vevar and Dahiyaar	Bundelkhand Region (Madhya Pradesh)
Deepa	Bastar District (Madhya Pradesh)
Zara and Erka	Southern States

Batra	South-eastern Rajasthan
Podu	Andhra Pradesh
Kumari	Hilly Region of the Western Ghats of Kerala
Kaman, Vinga and Dhavi	Odisha

- **Statement 3 is correct:** Shifting cultivation causes in **long term problem of land degradation and threat to ecology** of the region at large. **Burning of forests** results in **emissions of greenhouse gases (GHGs)** such as CO<sub>2</sub>, NO<sub>2</sub>. It also **increases surface run off of rainwater leading to soil erosion**.

#### 15. Correct Option: (a)

**Explanation:**

- **Statement 1 is correct:** Black carbon is a potent climate-warming component of particulate matter formed by the **incomplete combustion of fossil fuels, wood and other fuels**. The complex **mixture of particulate matter** resulting from incomplete combustion is often referred to as **soot**. **Black carbon and its co-pollutants** are key **components of fine particulate matter (PM2.5)** air pollution
- **Statement 2 is incorrect:** Black carbon is a **short-lived climate pollutant** with a **lifetime of only days to weeks** after release in the atmosphere. During this short period of time, black carbon can have significant direct and indirect impacts on the climate, glacial regions, agriculture and human health
- **Statement 3 is incorrect:** When deposited on ice and snow, black carbon and co-emitted particles **reduce surface albedo (the ability to reflect sunlight) and heat the surface**. The Arctic and glaciated regions such as the Himalayas are particularly vulnerable to melting as a result.

#### 16. Correct Option: (a)

**Explanation:**

- **Statement 1 is correct:** A **glacial lake outburst flood (GLOF)** is a **release of meltwater from a moraine-** or ice-dam glacial lake due to dam failure. GLOFs often



result in catastrophic flooding downstream, with major geomorphic and socioeconomic impacts

- **Statement 2 in incorrect:** **Moraines** are **accumulations of dirt and rocks** that have fallen onto the glacier surface or have been pushed along by the glacier as it moves. **Drumlins** are **elongated, teardrop-shaped hills of rock, sand, and gravel** that formed under moving glacier ice. They can be up to **2 kilometers (1.25 miles) long**.
- **Statement 3 in incorrect:** The term '**Glacial Lake Outburst Flood**' was making news because of rumours that the Kedarnath tragedy of last year was caused by a GLOF. However, it was **confirmed later that this tragedy was not caused due to GLOF** but due to a combination of several factors viz. early rainfall, movement of southwest monsoon winds, and the formation of a temporary lake.

## 17. Correct Option: (c)

**Explanation:**

- **Statement 1 is correct:** A carbon sink is anything that absorbs more carbon than it releases as carbon dioxide. In climate negotiations, this temporary reduction of carbon dioxide in the atmosphere is also known as **negative emissions**. **United Nations** accepts the **planting trees or reducing deforestation is equivalent to reducing emissions from burning fossil fuels**. The **carbon stock** in India is roughly **7 billion tonnes, equivalent to 25.66 billion tonnes of carbon dioxide**. The average annual increment of carbon stock is 35 million tonnes which is equivalent to 128.33 million tonnes carbon dioxide
- **Statement 2 is correct:** India has committed a target of creating an additional carbon sink the equivalent of 2.5 billion to 3 billion tonnes carbon dioxide by 2030 in COP 24. But India now anticipates that it **might not be able to meet that through forests alone**. It is now looking at the soil of **catchment areas as an additional alternative**.

## 18. Correct Option: (c)

**Explanation:**

- **Statement 1 in incorrect:** **Zero Budget Natural Farming** is a farming practice that believes in **natural growth of crops**

**without adding any fertilizers and pesticides or any other foreign elements. But it is different from organic farming.**

### • **Difference Between Organic Farming and Zero Budget Natural Farming**

- In organic farming, **organic fertilizers and manures like compost, vermicompost, cow dung manure, etc. are used** whereas in ZBNF, **no external fertilizers are added to soil or give to plants whatsoever, instead, decomposition of organic matter by microbes and earthworms is encouraged.**
- **Organic farming still requires basic agro practices like plowing, tilling, mixing of manures, weeding, etc. to be performed** whereas In **ZBNF there no plowing, no tilling of soil and no fertilizers, and no weeding is done** just the way it would be in natural ecosystems
- **Organic farming is still expensive** due to the requirement of bulk manures, and it has an ecological impact on surrounding environments; **whereas, natural agriculture is an extremely low-cost farming method**, completely molding with local biodiversity.
- **Statement 2 is incorrect:** The word Zero Budget refers to **zero net cost of production of all crops**. It doesn't mean that the farmer is going to have no costs at all, but rather that **any costs will be compensated for by income** from intercrops, making farming a close to zero budget activity. Farmers **need not purchase fertilizers and pesticides** in order to ensure the healthy growth of crops.
- **Statement 3 is correct:** The **four pillars of ZBNF** are:
  - **Jeevamrutha-** a fermented microbial culture, which acts as a catalytic agent that promotes the activity of microorganisms in the soil;
  - **Beejamrutha-** a treatment used for seeds, to protect young roots from fungus as well as from soil-borne and seedborne diseases.
  - **Acchadana** – Mulching protects top soil during cultivation and does not destroy it by tilling.

- **Whapasa** – Whapasa is the condition where there are both air molecules and water molecules present in the soil

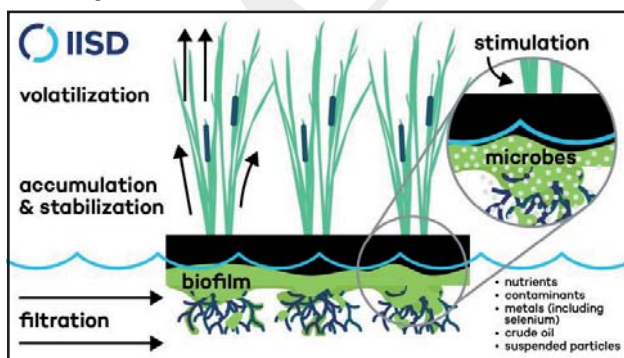
## 19. Correct Option: (c)

**Explanation:**

- **Statement 1 is incorrect:** **Mangalajodi Ecotourism Trust** is **community owned** and managed venture promoted by RBS Foundation India and Indian Grameen Services on banks of **Chilika Lake** in **Odisha**.
- **Statement 2 is incorrect:** **Chilika Lake** is **largest coastal lagoon** or brackish water lake in **India and Asia** and **second largest lagoon in the world**. It is located at mouth of Daya River, flowing into Bay of Bengal. It was designated as the **first "Ramsar Site" of India**.
- **Statement 3 is correct:** A **lagoon** is a body of water separated from larger bodies of water by a natural barrier.
- **Statement 4 is incorrect:** The **World Tourism Organization (UNWTO)** is the United Nations specialized agency responsible for the promotion of responsible, sustainable and universally accessible tourism. UNWTO's **membership includes 158 countries**, 6 territories and over 500 affiliate members representing the private sector, educational institutions, tourism associations and local tourism authorities. Its **headquarters are located in Madrid, Spain**.

## 20. Correct Option: (b)

**Explanation:**



- **Statement 1 is correct:** Floating treatment wetlands (FTWs) or islands are small artificial platforms that allow aquatic emergent plants to grow. The use of wetlands for bioremediation to capture and remove contaminants and

nutrients is widely practiced around the world. Their roots **spread through the floating islands and down into the water** creating dense **columns of roots with lots of surface area**.

- **Statement 2 is correct:** The natural ability of plants and microbes to absorb nutrients (such as phosphorus and nitrogen) and break down contaminants through biological processes is **known as bioremediation**.
- **Statement 3 is incorrect:** The Floating Treatment Wetland (FTW) was inaugurated on **World Wetlands Day (February 2)** in **Neknampur Lake in Hyderabad** to clean and purify the polluted waterbody. **Cleaning agents planted on FTW** include **vetivers, cattalis, canna, bulrush, citronella, hibiscus, fountain grass, flowering herbs, tulsi and ashvagandha**.

## 21. Correct Option: (b)

**Explanation:**

- **Statement 1 is correct:** The Olive ridley turtles are the **smallest and most abundant of all sea turtles** found in the world, inhabiting **warm waters of the Pacific, Atlantic and Indian oceans**.
- **Statement 2 is correct:** Their **vulnerable status** comes from the fact that they **nest in a very small number of places**, and therefore **any disturbance to even one nest beach could have huge repercussions** on the entire population.
- **Statement 3 is Incorrect:** The **Government of Odisha is planning to declare Rushikulya rookery a Protected Area**. Of the **three mass nesting sites** along the Odisha coast – Gahirmatha, Rushikulya and the Devi River mouth, **only Gahirmatha is legally protected**.

## 22. Correct Option: (c)

**Explanation:**

- **Statement 1 is correct:** **Mission Innovation (MI)** is a global initiative of **23 countries and the European Commission** (on behalf of the European Union) working to reinvigorate and accelerate global clean energy innovation with the objective to make clean energy widely affordable. **India is a member** of MI. **Department**

of **Biotechnology** also has established Sustainable Biofuel Innovation Challenge (SBIC) under MI. A **two day international conference on Sustainable Biofuels** is jointly being organized by **Department of Biotechnology, Govt. of India and Biofuture platform**.

- **Statement 2 is incorrect:** Ministry of Science and Technology is the nodal agency coordinating and steering the activities of Mission Innovation in India
- **Statement 3 is correct:** Generations of Biofuels:
  - **First Generation:** First-generation biofuels **rely on food crops** as their feedstock
  - **Second Generation:** 2<sup>nd</sup> generation biofuels come from **non-food biomass**.
  - **Third Generation:** Third-generation biofuels seek to **improve the feedstock**. Designing oilier crops, for example, could greatly boost yield.
  - **Fourth Generation:** Fourth-generation technology **combines genetically optimized feedstocks**, which are designed to **capture large amounts of carbon, with genomically synthesized microbes**, which are made to **efficiently make fuels**. Key to the process is the capture and sequestration of CO<sub>2</sub>, a process that renders **fourth-generation biofuels a carbon negative source of fuel**.

### 23. Correct Option: (a)

**Explanation:**

- **Statement 1 is incorrect:** India is one of the few countries which have a forest policy since 1894. The policy was **revised in 1952 and again in 1988**. **National Forest Policy, 1988** aims to ensure environmental stability and maintenance of ecological balance.
- **Statement 2 is correct:** As per the Draft Policy, A **National Board of Forestry** headed by the central minister in-charge of forests and **State Boards of Forestry** headed by state minister in-charge of forests will be established for ensuring inter-sectoral convergence, simplification of procedures, conflict resolution and periodic review.

- **Statement 3 is incorrect:** Getting India to have **at least 33%** of its area under forest has been a long standing goal of the government since 1988. **India State of Forest Report 2017** says that India has about 7,08,273 square kilometres of forest, which is **21.53% of the geographic area of the country** (32,87,569 sq. km).

### 24. Correct Option: (d)

**Explanation:**

- **Statement 1 is correct:** **National Biogas and Manure Management Programme** is a Central Sector Scheme. Under **Central sector schemes**, it is **100% funded** by the Union government and **implemented by the Central Government** machinery. **Ministry of New and Renewable Energy** is implementing the National Biogas and Manure Management Programme (NBMMP) in all the States and UTs of the country.
- **Statement 2 is correct:** The scheme which provides for **setting up of Family Type Biogas Plants mainly for rural and semi-urban households**. A family type biogas plant generates biogas from organic substances such as cattle –dung, and other bio-degradable materials such as biomass from farms, gardens, kitchens and night soil wastes etc.
- **Statement 3 is correct:** The process of biogas generation is called anaerobic digestion (AD) **Anaerobic digestion** is a series of biological processes in which **microorganisms break down biodegradable material in the absence of oxygen**.

### 25. Correct Option: (c)

**Explanation:**

- **Statement 1 is correct:** The WWDR is an **annual and thematic report** that focuses on different strategic water issues each year. It aims to provide decision-makers with the tools to implement sustainable use of our water resources. The development of the WWDR is **coordinated by the World Water Assessment Programme (WWAP)**, a **joint effort of the UN agencies** and entities which make up UN-Water.
- **Statement 2 is incorrect:** There is **no single UN entity dedicated**

**exclusively to water issues.** Over 30 UN organizations carry out water and sanitation programmes, reflecting the fact that water issues run through all of the UN's main focus areas. **UN-Water's role is to coordinate so that the UN family 'delivers as one'** in response to water related challenges.

- **Statement 3 is correct:**
- **Important highlights of the Report:**
  - Global demand for water has increased six-fold over the past 100 years and continues to grow at the rate of 1% each year.
  - Demand for water is projected to rise faster in developing countries.
  - The report highlights that more than 5 billion people could suffer water shortages by 2050.
  - The report thus emphasises the importance of **nature-based solutions**.
  - Pollution has worsened the water bodies and water is expected to deteriorate further in the coming two decades.
  - Water scarcity can lead to civil unrest, mass migration and even to conflict within and between countries.

## 26. Correct Option: (a)

**Explanation:**



- **Statement 1 is correct:** World Wide Fund for Nature (WWF) organizes One Planet City Challenge (OPCC) annually to mobilize cities to deliver on the Paris Agreement. It supports and celebrate 100 cities with action plans for 1.5°C by 2020.
- **Statement 2 is incorrect:** The **black-and-white panda** is the logo of World Wide Fund for Nature.
- **Statement 3 is incorrect:** **Panaji, Pune, and Rajkot** were the three Indian cities

which were selected as national finalists in 2017-2018 edition of WWF's One Planet City Challenge (OPCC). However, **Rajkot emerged as the National Winner** in 2017-2018 edition of WWF's One Planet City Challenge (OPCC).

## 27. Correct Option: (a)

**Explanation:**

- **Statement 1 is correct:** **Solar radiation management (SRM or solar geoengineering)** is a theoretical approach to reducing some of the impacts of climate change by **reflecting a small amount of inbound sunlight back out into space**. **Some SRM techniques:**
  - **Stratospheric aerosol injection** - When very large volcanoes erupt they blast millions of tonnes of reflective **sulphate particles into the stratosphere**. These particles circulate the planet on the powerful stratospheric winds, **reflecting away a small amount of inbound sunlight and cooling the planet** for a year or two. **Stratospheric aerosol ejection would seek to replicate this effect, with aeroplanes or balloons used to inject reflective aerosol particles into the upper atmosphere.**
  - **Marine cloud brightening** - **Large areas of ocean are covered in marine stratus clouds**. Scientists have proposed that spraying tiny droplets of seawater into these clouds could make them lighter and more reflective. **Whiter, brighter clouds reflect more sunlight back out into space, and would help cool the planet.**
- **Statement 2 is incorrect:** It is in the early stages of research, but it is **already a controversial topic**. It is clear that SRM has the potential to be **very helpful or very damaging for those people and species most threatened by climate change**, but it is **very unclear what its full effects would be**.

## 28. Correct Option: (c)

**Explanation:**

- **Statement 1 is correct:** **Dust Storms** are an ensemble of particles of dust or sand energetically lifted to great heights by



a strong and turbulent wind. The recent dust storm which took lives of atleast 100 people, stretched from the western state of **Rajasthan to the eastern state of Uttar Pradesh and hit Delhi**, which lies between them.

- **Statement 2 is incorrect:** A **Downburst** is characterized by intense, **downward air movements during thunderstorms**. They can produce some of the strongest wind gusts of all weather patterns. **As the downward air hits the ground, it moves outward and back up**. While **downbursts can span distances over 200 miles**, some are more concentrated, impacting ground only a mile across.
- **Statement 3 is correct:** The **main reason** the these dust storms were so catastrophic was because of the time when the strongest winds hit - **at night, as people were sleeping indoors**. Most of deaths were **because of the collapse of buildings and other structures**.

## 29. Correct Option: (d)

**Explanation:**

- **Statement 1 is incorrect:** **Suva is an expert dialogue** to explore a wide range of information, inputs and views on ways for facilitating the mobilization and securing of expertise, and enhancement of support, including finance, technology and capacity-building, for averting, minimizing and addressing **loss and damage associated with the adverse effects of climate change**.
- **Statement 2 is correct:** It took place in Bonn, Germany.
- **Statement 3 is correct:** **COP 23 requested the UN Secretariat**, under the guidance of the Executive Committee of the **Warsaw International Mechanism for Loss and Damage** (the Executive Committee) and the Chair of the Subsidiary Body for Implementation (SBI) to organize such an Expert Dialogue.
- **Key Outcome** - One of the outcomes will be a **table capturing the potential sources of support to avert, minimize, and address loss and damage**.

## 30. Correct Option: (d)

**Explanation:**

- **Statement 1 is incorrect:** **South Asia Wildlife Enforcement Network (SAWEN)**

is an inter-governmental **wildlife law enforcement** support body of South Asian countries. It promotes regional cooperation to **combat wildlife crime in South Asia**. SAWEN is now a **legitimate intergovernmental organization** with **endorsement of the SAWEN Statute** by five countries namely **Sri Lanka, India, Nepal, Pakistan and Bangladesh**.

- **'Wildlife' means all fauna and flora.**
- **'Fauna' are animals and birds**, such as tigers and falcons, but **also include fish**.
- **'Flora' are plants**, such as orchids or cacti, but also include timber and non-timber forest products, some of which are illegally traded at very significant levels
- **CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora)** – It is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

- **Statement 2 is correct:** Its members are - **Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka (All the SAARC Nations)**.
- **Statement 3 is Correct:** SAWEN operates its activities from the Secretariat based in **Kathmandu, Nepal**.

## 31. Correct Option: (b)

**Explanation:**

- **Statement 1 is incorrect:** **The National Institute for Transforming India (NITI) Aayog** has developed the **Composite Water Management Index (CWMI)** to enable effective water management in Indian states in the face of this growing crisis.
  - The **CWMI is the first comprehensive collection of country-wide** water data in India. It is aimed at promoting competitiveness among states, driving them toward effective water governance
- **Statement 2 is correct:** For the purposes of analysis, the reporting states were divided into **two special groups** – **'North Eastern and Himalayan states'**



and 'Other States', to account for the different hydrological conditions across these groups.

- **Statement 3 is incorrect:** The report ranks **Gujarat as number one** in the reference year (2016-17), followed by Madhya Pradesh, Andhra Pradesh, Karnataka and Maharashtra. In North Eastern and Himalayan States, **Tripura has been adjudged number 1** in 2016-17 followed by Himachal Pradesh, Sikkim and Assam.
  - In terms of **incremental change in index** (over 2015-16 level), **Rajasthan holds number one position in general States** and **Tripura ranks at first position amongst North Eastern and Himalayan States**.

### 32. Correct Option: (b)

**Explanation:**

- **Statement 1 is incorrect:** "Dead zone" is a more common term for **hypoxia**, which refers to a **reduced level of oxygen in the water**. Such a low oxygen concentration suffocates the animal life.
  - Hypoxic zones can **occur naturally**, but these areas are also created or **enhanced by human activity**.
  - **Nutrient pollution** is the **primary cause of those zones created by humans**. **Excess nutrients** that run off land or are piped as wastewater into rivers and coasts can **stimulate an overgrowth of algae**, which then **sinks and decomposes in the water**. The **decomposition process consumes oxygen** and depletes the supply available to healthy marine life.
  - One of the largest dead zones forms in the **Gulf of Mexico every spring**.
- **Statement 2 is correct:** Scientists including those from India have found a huge 'dead zone' of an estimated **60,000 square kilometres in Bay of Bengal**.
  - In recent times, warming of the atmosphere through **climate change** is predicted to lead **expansion of 'dead zones' in the ocean**.

### 33. Correct Option: (b)

**Explanation:**

- **Statement 1 is correct:** National Disaster Risk index is currently in a draft form

made by the **Union Home Ministry** with support from the **United Nations Development Programme (UNDP)**.

- The index factors in exposure of population, agriculture and livestock and environmental risk in drawing up the rankings.
- The disasters taken into consideration include cyclones, earthquakes, landslides, etc.
- A "disaster" is defined as per the specifications in **Disaster Management Act, 2005**. Accordingly, a "disaster" means a **catastrophe, mishap, calamity or grave occurrence in any area**.
- This could arise from **natural or man-made causes**, or by accident or negligence.
- **Statement 2 is correct:** **Maharashtra has been ranked at the top** of the list of Indian states, vulnerable to natural disasters, followed by West Bengal, Uttar Pradesh, and Madhya Pradesh, according to the National Disaster Risk Index.
- **Statement 3 is incorrect:** Among the Union Territories, **Delhi is the most vulnerable** to such disasters.

### 34. Correct Option: (c)

**Explanation:**

- **Statement 1 is incorrect:** **World Bank** has recently released South Asia's Hotspots Report to assess the **Impact of climate change on Living Standards in South Asian Region**.
- **Statement 2 is incorrect:** The report identifies climate "**hotspots**" as defined geographical areas where living standards will be most adversely impacted by changes in average weather.
- **Statement 3 is correct:**
  - The report looks at **two scenarios** namely **Climate-sensitive** and **Carbon-intensive**.
  - **Climate-Sensitive** - It represents a future "in which some **collective action is taken** to limit greenhouse gas emissions and global annual average temperatures **increase 2.4°C by 2100 relative to pre-industrial levels**."

- **Carbon-Intensive** - It represents a future in which **no actions are taken** to reduce emissions and global annual average **temperatures increase 4.3°C by 2100 relative to pre-industrial levels**.
- *If **preventive measures are taken** along the lines of the Paris Agreement, India's average annual temperatures are expected to **rise by 1-2°C by 2050**.*
- If **no measures are taken**, average temperatures in India are predicted to **increase by 1.5-3°C by 2050**.

### 35. Correct Option: (c)

**Explanation:**

- **Statement 1 is correct:** The **Indian Meteorological Department IMD** has commissioned **two** very high resolution (**12 km grid scale**) state-of-the-art global Ensemble Prediction Systems (EPS) for generating operational **10-days probabilistic forecasts** of weather.
- **Statement 2 is correct:** The EPS involves the generation of **multiple forecasts using slightly varying initial conditions**.
  - The probabilistic forecasts of severe weather events at 12 km grid scale across India will **greatly help the disaster management**.
- **Statement 3 is incorrect:** India Meteorological Department IMD comes under the **Ministry of Earth Sciences**.

### 36. Correct Option: (d)

**Explanation:**

- **Statement 1 is correct:** Arsenic (As) is an **odourless and tasteless** metalloid widely distributed in the earth's crust. It has an **atomic number of 33**.
  - Arsenic occurs naturally in the environment in **both organic (arsenic atoms bonded with carbon) and inorganic (no carbon) forms**.
  - **Inorganic arsenic** is the type associated with **more adverse health effects** for humans.
  - Arsenic can get into the human body **through drinking water as well as eating food** that has been contaminated with arsenic.

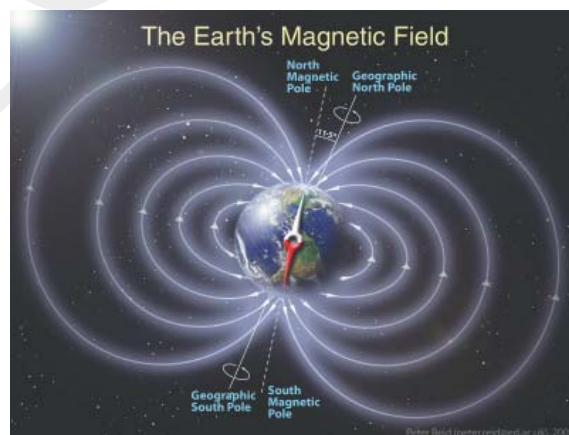
- Arsenicosis is the medical word for arsenic poisoning, which occurs due to accumulation of large amounts of arsenic in the body.

- **Statement 2 is incorrect:** The guideline value or **maximum contaminant level (MCL)** for arsenic in drinking water is **10 ppb (according to WHO)** followed by most of the developed countries. In developing countries including **India and Bangladesh, 50 ppb is considered as the accepted level** for arsenic in drinking water.
- **Statement 3 is correct:** Arsenic **cannot be removed by boiling** as it is **NOT a volatile substance**. Rather, its **concentration increases as water evaporates** during boiling.
  - "**Volatile**" refers to a substance that **vaporizes readily**.

### 37. Correct Option: (b)

**Explanation:**

- **Statement 1 is correct:** **Creation of Earth's Magnetic Field**

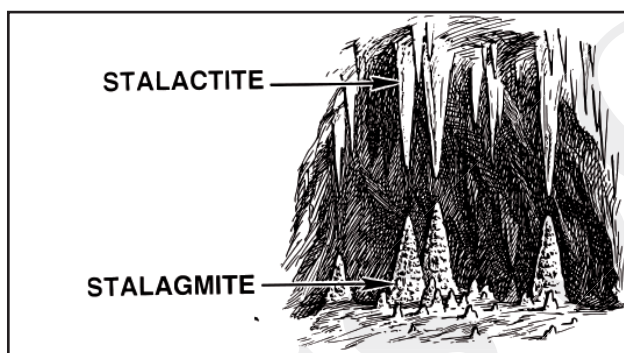


- The planet's **inner core is made of solid iron**. Surrounding the inner core is a **molten outer core**.
- The Earth itself spins on its axis. The inner core spins as well, and it spins at a different rate than the outer core.
- This **creates a dynamo effect** and this is what **creates the Earth's magnetic field**.
- **Statement 2 is correct:** **Shifting in Magnetic Poles of Earth**
  - The **magnetic field varies over time** as the Molten Liquid changes its spinning speed. As the magnetic field changes, the position of magnetic poles change accordingly.

- Earth has settled in the last 20 million years into a **pattern** of a pole reversal about every **200,000 to 300,000 years**
- As the lava solidifies, it **creates a record of the orientation of past magnetic fields** much like a tape recorder records sound.
- **Statement 3 is incorrect: Impact of Polarity Reversal**
  - This is proof that a **polarity reversal would not affect the rotation axis of Earth**
  - Fossil records from hundreds of past magnetic polarity reversals; indicate that **polarity reversal would not lead to any dramatic effects.**
  - **Reversals are a Rule, Not an exception**

### 38. Correct Option: (c)

Explanation:



- **Statement 1 is incorrect:** Scientists have created a new phase in Earth's geological history and named it **Meghalayan**, after a **stalagmite** from a cave in the Indian state of Meghalaya that helped define climatic events 4,200 years ago, marking the beginning of the phase that continues till today.
  - A **stalagmite** is an **upward-growing mound** of mineral deposits that have precipitated from water dripping onto the floor of a cave
  - A **stalactite** is an icicle-shaped formation that **hangs from the ceiling** of a cave.
  - The **Meghalayan Age began with a mega global drought** that devastated ancient agricultural civilisations from Egypt to China. It is **part of a longer period known as the Holocene**

**Epoch**, which reflects everything that has happened over the past 11,700 years.

- **Statement 2 is correct:** The Meghalayan is **unique because** it is the **first interval in Earth's geological history that coincided with a major cultural event**, as agricultural societies struggled to recover from the shift in climate.
  - The droughts over a 200-year period resulted in human migrations in Egypt, Greece, Syria, Palestine, Mesopotamia, the Indus valley and the Yangtze river valley.
- **Statement 3 is correct: About International Union of Geological Sciences (IUGS)**
  - The IUGS is an **international non-governmental organization** devoted to **international cooperation in the field of geology.**
  - IUGS is a **joint partner with UNESCO** for the International Geoscience Programme (IGCP) and they also participate in the **Global Network of National Geoparks (GGN).**

### 39. Correct Option: (c)

Explanation:

- **Statement 1 is correct: Union Ministry of Earth Sciences** has unveiled blueprint of **Deep Ocean Mission (DOM)**. For this mission, Centre has drawn up a **five-year, Rs. 8,000 crore plan** to explore deep recesses of the ocean.
  - The **focus** will be on technologies for deep-sea mining, underwater vehicles, underwater robotics and ocean climate change advisory services.
- **Statement 2 is incorrect:** An **Exclusive Economic Zone or EEZ** is a zone in the sea approved by the **UN Convention on the Law of the Sea (UNCLOS)**. Over this zone, a nation-state has **exclusive special rights** for exploring and using the marine resources. It extends from the **baseline to two hundred nautical miles from the coast of the concerned country.**
  - The Exclusive Economic Zone (EEZ) allotted to India (**2.2 million sq.km**) in the international waters will be covered under this mission.

- It is to be noted that **EEZ is approved by UNCLOS**, but the right to explore deep sea minerals like Poly- Metallic Nodules is granted by **International Seabed Authority ISA**.
- **Statement 3 is correct:** Under this mission, the key deliverables are:
  - **Offshore desalination plant** that will work with tidal energy, and
  - **Developing a submersible vehicle** that can go to a depth of at least 6,000 metres with three people on board.

#### 40. Correct Option: (d)

**Explanation:**

- **Statement 1 is incorrect:** Complying with the UNFCCC decisions on REDD+, India has prepared its National REDD+ Strategy.
  - The strategy report has been **prepared by Indian Council of Forestry Research & Education (ICFRE)**.
  - The **Indian Council of Forestry Research and Education (ICFRE)** is an autonomous organisation under the Ministry of Environment and Forests and Climate Change, Government of India. **Headquartered in Dehradun**.
- **Statement 2 is incorrect:** REDD i.e. "Reducing emissions from deforestation and forest degradation" was first introduced in UNFCCC as a climate change mitigation option.
- With India's intervention for inclusion of policy approach of conservation and sustainable management of forests, the concept of "**forest conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries**" was added and the concept is **now collectively referred as 'REDD+'.**

#### 41. Correct Option: (c)

**Explanation:**

- **Statement 1 is incorrect:** The **Brazzaville Declaration** is signed to boost the coordination efforts to protect the benefits provided by **peatland ecosystems**. It is aimed to protect the **Cuvette Centrale region in the Congo Basin**, the

world's largest tropical peatlands, from unregulated land use and prevent its drainage and degradation.

- **Statement 2 is incorrect:** The **Democratic Republic of Congo (DRC)**, the Republic of Congo and **Indonesia** jointly signed the Brazzaville declaration
- **Statement 3 is correct.** The **equivalent of three years** of global greenhouse gas emissions are stored in the Congo Basin, emissions that could be **released if the peatlands are degraded** or the natural wetlands drained.

#### 42. Correct Option: (b)

**Explanation:**

- **Statement 1 is incorrect:** A **Heat Wave** is a period of **abnormally high temperatures**, more than the normal maximum temperature that occurs **during the summer season** in the **North-Western parts of India**. Heat Waves typically occur **between March and June**, and in some rare cases even extend till July.
- **Statement 2 is correct:** The **Indian Meteorological Department (IMD)** has given the following **criteria for Heat Waves** : Heat Wave need not be considered till maximum temperature of a station reaches **atleast 40°C for Plains and atleast 30°C for Hilly regions**.

#### 43. Correct Option: (b)

**Explanation:**

- **Statement 1 is correct:** Methane hydrate, also known as "**gas hydrate**" or "**flammable ice**," is an **ice-like substance composed of methane gas and water**. These are trapped **beneath permafrost and ocean sediment** where **low temperature and moderate pressure** combine to trap methane in this specific way.
- **Statement 2 is correct:** The methane hydrate is **highly flammable and energy-intensive** fuel as one cubic metre of the compound can releases about 160 cubic metres of gas. It can break down into water and methane after temperature is raised or pressure is lowered. It is likely to be the **world's last great source of carbon-based fuel**.



- **Statement 3 is incorrect:** China has successfully produced natural gas from methane hydrate, also known as "flammable ice", in an experimental project in the **South China Sea (SCS)**. India, Canada and US are also believed to be looking at hydrates as an alternative energy source

#### 44. Correct Option: (b)

**Explanation:**

- **Statement 1 is incorrect:** In a **normal year**, a surface **low pressure** develops in the region of **northern Australia and Indonesia** and a **high pressure** system over **the coast of Peru**. As a result, the trade winds over the Pacific Ocean move strongly from **east to west**.
- The easterly flow of the trade winds carries **warm surface waters westward & along the coast of Peru, cold bottom nutrient rich water wells up** to the surface to replace the warm water that is pulled to the west.
- In an **El Niño year**, the normal **low pressure system is replaced by a weak high in the western Pacific** (the southern oscillation). This change in pressure pattern causes the trade winds to be reduced = Weak Walker Cell. Sometimes **Walker Cell might even get reversed**.
- This reduction allows the equatorial counter current (current along doldrums) to accumulate warm ocean water along the coastlines of Peru and Ecuador
- This accumulation of warm water causes the thermocline to drop in the eastern part of Pacific Ocean which cuts off the upwelling of cold deep ocean water along the coast of Peru
- **Statement 2 is correct.** The warmer waters had a **devastating effect** on marine life existing off the **coast of Peru and Ecuador**. Severe **droughts occur in Australia, Indonesia, India and southern Africa**. The most prominent droughts in India – six of them – since 1871 have been El Nino droughts, including the recent ones in 2002 and 2009

#### 45. Correct Option: (d)

**Explanation:**

- **All the statements are correct:** A tropical cyclone (TC) is a **rotational low-**

**pressure system in tropics** when the **central pressure falls by 5 to 6 hPa** from the surrounding and maximum **sustained wind speed reaches 34 knots** (about 62 kmph). **Cyclone Mora Formation** - A **deep depression in the Bay of Bengal** intensified into a tropical cyclone named Mora. Life period of a tropical cyclone over the north Indian Ocean is 5-6 days

#### Naming of a Cyclone

- **World Meteorological Organization (WMO)** maintains rotating lists of names which are appropriate for each Tropical Cyclone basin.
- There is a strict procedure to determine a list of tropical cyclone names in an ocean basin(s) by the Tropical Cyclone Regional Body responsible for that basin(s) at its annual/biennial meeting.
- For the **Indian Ocean region**, deliberations for naming cyclones **began in 2000** and a formula was agreed upon in 2004. **Eight countries in the region - Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand** - all contributed a set of names which are assigned sequentially whenever a cyclonic storm develops.

#### 46. Correct Option: (d)

**Explanation:**

- **Statement 1 is incorrect:** In order to protect the rich aquatic biodiversity of river Ganga from escalating anthropogenic pressures, development of a **Turtle sanctuary in Allahabad** along with a River Biodiversity Park **at Sangam** have been approved **under Namami Gange programme**.
- **Statement 2 is incorrect:** **National Mission for Clean Ganga(NMCG)** acts as implementation arm of **National Ganga River Basin Authority(NGRBA)** which was constituted under the provisions of the Environment (Protection) Act (EPA),1986
- The **aims and objectives of NMCG** is to accomplish the mandate of National Ganga River Basin Authority (NGRBA) of
  - To ensure effective **abatement of pollution and rejuvenation of the river Ganga** by adopting a **river basin approach** to promote inter-sectoral co-ordination for comprehensive planning and management

- To maintain **minimum ecological flows in the river Ganga** with the aim of ensuring water quality and environmentally sustainable development.

#### 47. Correct Option: (d)

##### Explanation:

- **Statement 1 is incorrect:** UN Water released the annual World Water Development Report 2018, titled '**Nature-Based Solutions for Water**'. It was launched 19 March 2018 during the **8th World Water Forum**, and in conjunction to the **World Water Day**, demonstrates how nature-based solutions (NBS) offer a vital means of moving beyond business-as-usual to address many of the world's water challenges while simultaneously delivering additional benefits vital to all aspects of sustainable development.
- **Statement 2 is incorrect:** There is **no single UN entity dedicated exclusively to water issues**. Over 30 UN organizations carry out water and sanitation programmes, reflecting the fact that water issues run through all of the UN's main focus areas. **UN-Water's role is to coordinate so that the UN family 'delivers as one' in response to water related challenges**

#### 48. Correct Option: (b)

##### Explanation:

- **Statement 1 is correct:** Persistent organic pollutants (POPs) are **organic chemical substances** that are recognized as a **serious, global threat to human health and to ecosystems**. They remain **intact for exceptionally long periods of time** (many years) and are **toxic to both humans and wildlife**.
- **Statement 2 is correct:** **Biomagnification** refers to the tendency of pollutants to concentrate as they move from one trophic level to the next. In **bioaccumulation** there is an increase in concentration of a pollutant from the environment to the first organism in a food chain.
- **Statement 3 is incorrect:** The **Stockholm Convention on Persistent**

**Organic Pollutants (POPs)** is a global treaty to protect human health and the environment from highly dangerous, long-lasting chemicals by restricting and ultimately eliminating their production, use, trade, release and storage. **Rotterdam Convention** was signed to promote shared responsibility and cooperative efforts among Parties in the **international trade of certain hazardous chemicals** in order to protect human health and the environment from potential harm

#### 49. Correct Option: (b)

##### Explanation:

- **Statement 1 is incorrect:** The Eighth Regional 3R Forum in Asia and Pacific was **held in Indore, Madhya Pradesh**. The forum provides **strategic platform** for sharing best practices in 3R areas, including new and emerging issues of concern in waste management. Its **members include governments, aid agencies, international agencies, private sector entities, research bodies, NGOs and other relevant parties**.
- **Statement 2 is correct:** It was co-organized by **Ministry of Housing and Affairs, Japan's Environment Ministry, and United Nations Centre for Regional Development (UNCRD)**.
- **Statement 3 is correct:** The Regional 3R Forum in Asia and Pacific was **launched in 2009 in Tokyo, Japan** with objective of integrating **3Rs— reduce, reuse and recycle** in policy, planning and development.

#### 50. Correct Option: (d)

##### Explanation:

- **Statement 1 is correct:** The Government of India hosted 90+ delegations including 50 energy ministers, 30 CEOs, 12 heads of international organisations at the **16th biennial International Energy Forum Ministerial Meeting (IEF16) in New Delhi** on 10-12 April 2018 with the support of the People's Republic of China and the Republic of Korea as co-hosts.
- **Statement 2 is incorrect:** The meeting was held under the theme: **"The Future**



**of Global Energy Security - Transition, Technology, Trade and Investment".** Providing the opportunity for attendees to discuss relevant issues that currently affect global energy markets, the IEF Ministerial is the largest gathering of energy ministers in the world.

- **Statement 3 is correct:** The **Secretariat** is the administrative organ of the IEF. Governed by a **Secretary General** responsible to the Executive Board of the Forum the **Secretariat is a permanent body**. Based in the Diplomatic Quarter of **Riyadh, Saudi Arabia the Secretariat has been headquartered there** since its inception in December 2003.

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### CURRENT AFFAIRS (SCIENCE & TECHNOLOGY)

Time Allowed: 1 Hrs.

Maximum Marks: 100

Roll No.:

#### INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/ discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet.
4. While writing name and Roll No. on the top of the OMR Sheet in appropriate boxes use **"ONLY BLACK BALL POINT PEN"**.
5. This Test Booklet contains **50 items (questions)**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
6. You have to mark all your responses **ONLY** on the separate **OMR Answer Sheet** provided.
7. All items carry equal marks. **(2 marks each)**
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator only the Answer Sheet. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. Penalty for wrong answers:  
THERE WILL BE **PENALTY FOR WRONG ANSWERS MARKED** BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
  - (a) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third of the marks** assigned to that question will be **deducted as penalty**.
  - (b) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (c) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**

**1. Consider the following statements regarding Fixed Dose Combination Drugs (FDCs):**

1. FDCs contain two or more active pharmaceutical ingredients, distributed in variable doses and targeting multiple diseases.
2. FDCs are useful for chronic conditions especially, when multiple disorders co-exist.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**2. With reference to Higgs Boson, consider the following statements:**

1. The Higgs boson is an elementary particle produced by the quantum excitation of the Higgs field.
2. It was the last hold-out particle remaining hidden during the quest to check the accuracy of the Standard Model of Physics.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**3. Which of the following statements is/are correct about NASA's ICESat-2?**

1. It aims to measure the width of icy particles on the planets in the Kuiper belt
2. Researchers are going to use the information to study sea level rise resulting from melting ice sheets and glaciers, and to improve sea ice and climate forecasts

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**4. Which of the following statements about Apsara Nuclear reactor is/are correct?**

1. It is India's indigenous cryogenic research reactor.
2. The reactor burns enriched uranium in the form of aluminium alloyed curved plates

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**5. Recently Anti-Nuclear Medical kit was in news, consider the following statements about it:**

1. It is India's first medical kit for protection against nuclear warfare or radioactive leakage, produced recently in a joint collaboration with Russia.
2. It can protect, but cannot heal the radiation damage on the skin

Which of the above statements is/are **incorrect**?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**6. What is iLint ?**

- (a) It is the world's first hydrogen-powered passenger train
- (b) It is a robot manufactured on the lines of Artificial Intelligence
- (c) It the new prototype of Internet of Things by Google
- (d) It is the world's largest Fly-ash plant.

**7. With reference to Dickinsonia, consider the following statements:**

1. It is the earliest plant on geological record.
2. It has been found in Chotanagpur region.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only

- (c) Both 1 and 2
- (d) Neither 1 nor 2

**8. Consider the following statements regarding Astra Missile, tested recently:**

1. It is beyond visual range Surface to Air Missile.
2. It has a range of 100-150 kms.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**9. With reference to HOPE Probe, consider the following statements:**

1. It is a Chinese space mission aimed at learning about life on other planets in post-Milky Way galaxy
2. It works on the principle of echo, used in SONARS.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**10. Recently, researchers from University of Melbourne, Australian have discovered three variants of multidrug-resistant superbug in bacteria known as Staphylococcus epidermidis, that can cause severe infections or even death. Consider the following statements about this superbug:**

1. It infects the children and infants mostly.
2. It is found naturally on the skin of monkeys.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**11. Recently Cyclone-30 India's biggest cyclotron facility becomes operational. It will be:**

1. Used to predict cyclones through a range of sensors and networks
2. The first and only cyclotron facility in India to produce Germanium 68 radioisotope

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**12. Consider the following statements regarding Facial Recognition technology:**

1. It allows the passengers to move across different sections of the airport using automatic biometric boarding procedure instead of manual boarding passes verification.
2. India has the first end-to-end face recognition-based walk through experience in Asia and largest in the world.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**13. Which of the following is the correct description of the term EyeROV TUNA?**

- (a) It is an underwater robotic drone
- (b) It is an indigenously developed oil spill cleaner
- (c) It is a hybrid variety of vitamin rich fish found recently in Eastern coast of India
- (d) It is an underwater observatory.

**14. Consider the following statements regarding India's supercomputer named Pratyush:**

1. It will improve rankings of Indian supercomputer from 300s to 30s in Top 500 list globally.
2. It works under the Ministry of Electronics and Information Technology

Which of the above statements is/are **incorrect**?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**15. With reference to National Viral Hepatitis Control Programme, consider the following statements:**

- 1. It will include all viral strains of Hepatitis excluding Hepatitis E.
- 2. It aims to treat minimum of 3 lakh hepatitis cases over a period of three years.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**16. Consider the following achievements of Prof. SN Bose:**

- 1. He never received a doctorate nor was he awarded a Nobel Prize
- 2. The God Particle is named in his honour

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**17. Which of the following statements about Mass Embryo Transfer is/are correct?**

- 1. Farmer can get 5-6 fold increase in number of off-springs
- 2. Off-springs born will be free from diseases

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**18. Consider the following statements about Scorpene Submarine:**

- 1. It is a diesel-electric attack submarines equipped with anti-ship missile
- 2. The attacks can be carried out with torpedoes both while submerged or on surface — in all war theatres, including the tropics.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**19. Which of the following statements about INS Chakra is/are correct?**

- 1. It is part of Indo-Russia collaboration under the Project 75
- 2. It is the first Akula class submarine

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**20. Consider the following statements about Down Syndrome:**

- 1. It is a genetic disorder
- 2. It impacts neurological functions causing impairment of intellectual functions

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**21. With reference to Raman Effect, consider the following statements:**

- 1. It is a change in the wavelength of light that occurs when a light beam is deflected by molecules.
- 2. The discovery was awarded with the Nobel Prize in Physics.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only

- (c) Both 1 and 2
- (d) Neither 1 nor 2

**22. With reference to Machine to Machine (M2M) Communication, consider the following statements:**

1. Unlike Person-to-Person (P2P) communication, M2M technologies involve communication between two devices.
2. It enables only wireless devices to talk to each other using sensors.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**23. Which of the following statements about MILAN Exercise are correct?**

1. It is congregation of littoral navies conducted biennially by Indian Navy.
2. It was recently started under aegis of the Andaman and Nicobar Command.
3. In total, 16 countries participated in MILAN 2018.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**24. Consider the following statements about recently inaugurated Defence Industrial Corridor in Tamil Nadu:**

1. Tamil Nadu Defence Industrial Corridor would be a specialised facility of aero component manufacturing.
2. It is the country's first defence industrial corridor

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**25. With reference to the Nerve Agents, consider the following statements:**

1. They are among the most lethal form of chemical weapons.
2. Novichok is a type of Nerve Agent.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**26. Consider the following statements about Tuberculosis in India:**

1. India has set the target to eliminate Tuberculosis by 2030.
2. Elimination of a disease is defined by the World Health Organisation (WHO) as there should be less than 1 case of TB for a population of a million people.

Which of the above statements is/are **incorrect**?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**27. With reference to Saposhi, consider the following statements:**

1. It is a new malware that can take over electronic devices and use them for Distributed Denial of Service (DDoS) attacks.
2. Computer Emergency Response Team (CERT) is a Central government body that deals with cyber attack in India.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**28. The Shakti Sthala Solar park, one of the world's largest solar park is setup in which of the following states?**

- (a) Andhra Pradesh
- (b) Karnataka
- (c) Tamil Nadu
- (d) Kerala



**29. An international team of physicists have successfully created a “giant atom” and filled it with ordinary atoms, creating a new state of matter termed “Rydberg polarons”. Consider the following statements:**

1. These atoms are held together by a strong bond and is created at very hot temperatures.
2. It is an atom in which an electron has been kicked out to a very large orbit.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**30. Recently, the annual Lyrid meteor shower is set to reach a peak. Consider the following statements about it:**

1. It is one of the oldest known meteor showers.
2. It is classified as a high-strength shower.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**31. Recently, first Radio 5G Lab was established in ?**

- (a) ISRO, Bengaluru
- (b) IISc, Bengaluru
- (c) CSIR, Delhi
- (d) IIT, Delhi

**32. What is Gravity Rat?**

- (a) Malware
- (b) Space Mission
- (c) Extinct Spicy
- (d) None

**33. With reference to the disease Lassa Fever, consider the following statements:**

1. The disease is mainly prevalent in South Asian countries.
2. It's a zoonotic disease which transmits to human from Monkeys.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**34. Start-up States and UTs Ranking Framework is :**

1. Launched by Department of Industrial Policy and Promotion (DIPP).
2. Aiming to foster competitiveness and propel states/UTs to act pro-actively in start-up matters.
3. Based on feedback collected from Start-up ecosystem stakeholders

Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**35. With reference to Nipah Virus, consider the following statements:**

1. It is a zoonotic disease that causes severe disease in humans only.
2. It was first identified in Malaysia.
3. The virus can be transmitted through air.

Which of the above statements are **incorrect**?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**36. Consider the following statements about GRACE Mission:**

1. It is a mission to map Earth's water and ice by measuring changes in Earth's gravity field.
2. It is launched by ISRO.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only

- (c) Both 1 and 2  
(d) Neither 1 nor 2

**37. Which of the following statements about quadrivalent vaccine is/are incorrect?**

1. The vast majority of influenza vaccines manufactured were quadrivalent till recently
2. In India, the vaccine will be available as a single dose pre-filled syringe

Select the correct answer using the code given below:

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

**38. Recently KATRIN Experiment was in news. It's objective is to:**

- (a) Measure the mass of Neutrino.  
(b) Develop a Drug to treat Ebola.  
(c) Measure Earthquake Waves.  
(d) Study the Big-bang phenomena.

**39. Pinaka Rocket is :**

1. Developed by DRDO.
  2. Fired using multi-barrel rocket launcher
- Which of the above statements is/are **incorrect**?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

**40. Recently, Scientists from New Zealand have performed world's first-ever 3-D, colour X-ray on human. With reference to it, consider the following statements:**

1. The new device is based on the traditional black-and-white X-ray
2. It gives high-resolution and high-contrast pictures.

Which of the above statements is/are correct?

- (a) 1 only  
(b) 2 only

- (c) Both 1 and 2  
(d) Neither 1 nor 2

**41. Recently, Indian IT industry's apex body National Association of Software and Services Companies (NASSCOM) has launched its Centre of Excellence for the Internet of Things (CoE – IoT). Consider the following statements about it:**

1. It aims to act as perfect collaboration for innovation and high-end technologies
2. It is inaugurated at Gurugram, Haryana.
3. It is a part of nationwide collaboration involving the Ministry of Electronics and Information Technology (MeitY).

Which of the above statements is/are correct?

- (a) 1 only  
(b) 1 and 2 only  
(c) 2 and 3 only  
(d) 1, 2 and 3

**42. Consider the following statements about World Intellectual Property Organisation (WIPO):**

1. It is the global body for promotion and protection of Intellectual Property Rights (IPR).
2. It is the specialized agencies of United Nations (UN).
3. It is headquartered in Geneva, Switzerland.
4. It prescribes mandatory measures to the member countries.

Which of the above statements are correct?

- (a) 1 and 4 only  
(b) 1, 2 and 4 only  
(c) 1, 2 and 3 only  
(d) 1, 2, 3 and 4

**43. Consider the following statements about 5G technology:**

1. It is a wireless communication technology based on third-generation partnership project
2. The 5G wireless technology will offer far greater upload and download speed i.e. 100 times faster internet data speed than current 4G networks.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**44. Which of the following statements about Ballistic Missile Interceptor Advanced Area Defence (AAD) is/are correct?**

1. It is recently tested by Bhabha Atomic Research Centre.
2. It is a single-stage, solid-fuelled missile.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**45. What is Uakite, recently in news?**

- (a) New geometrical shape discovered.
- (b) A new mineral discovered.
- (c) Russian made Drone.
- (d) Cancer healing Drug

**46. What is Scutoid?**

- (a) Newly discovered geometrical shape.
- (b) An asteroid seen crossing the Earth.
- (c) A new body organ discovered.
- (d) Artificial Intelligence News Anchor.

**47. Recently, in which of the following state India's first genetic bank for wildlife conservation was inaugurated?**

- (a) Rajasthan
- (b) Telangana
- (c) Maharashtra
- (d) Haryana

**48. Consider the following statements about National Institute of Food Technology Entrepreneurship and Management (NIFTEM):**

1. It is the brainchild of Ministry of Agriculture & Farmers Welfare.
2. NIFTEM will work actively for assisting in setting up food standards.
3. It would also be an apex institution in the field of food technology and management,

Which of the above statements is/are **incorrect**?

- (a) 1 only
- (b) 3 only
- (c) 1 and 2 only
- (d) 2 and 3 only

**49. With reference to Two-Factor Authentication (2FA), consider the following statements:**

1. Two-factor authentication methods rely on users providing a password as well as a second factor as passcode.
2. It adds an additional layer of security to the authentication process by making it harder for attackers to gain access to a person's devices.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**50. What is "P null"?**

- (a) Virus
- (b) Blood Group
- (c) Cyclone
- (d) Asteroid

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# **CURRENT AFFAIRS**

## **(SCIENCE & TECHNOLOGY)**

### ***Answer Key***

<b>Q. 1</b>	<b>(c)</b>	<b>Q. 14</b>	<b>(b)</b>	<b>Q. 27</b>	<b>(c)</b>	<b>Q. 40</b>	<b>(c)</b>
<b>Q. 2</b>	<b>(c)</b>	<b>Q. 15</b>	<b>(b)</b>	<b>Q. 28</b>	<b>(b)</b>	<b>Q. 41</b>	<b>(d)</b>
<b>Q. 3</b>	<b>(b)</b>	<b>Q. 16</b>	<b>(c)</b>	<b>Q. 29</b>	<b>(b)</b>	<b>Q. 42</b>	<b>(c)</b>
<b>Q. 4</b>	<b>(b)</b>	<b>Q. 17</b>	<b>(c)</b>	<b>Q. 30</b>	<b>(a)</b>	<b>Q. 43</b>	<b>(c)</b>
<b>Q. 5</b>	<b>(c)</b>	<b>Q. 18</b>	<b>(c)</b>	<b>Q. 31</b>	<b>(d)</b>	<b>Q. 44</b>	<b>(b)</b>
<b>Q. 6</b>	<b>(a)</b>	<b>Q. 19</b>	<b>(b)</b>	<b>Q. 32</b>	<b>(a)</b>	<b>Q. 45</b>	<b>(b)</b>
<b>Q. 7</b>	<b>(d)</b>	<b>Q. 20</b>	<b>(b)</b>	<b>Q. 33</b>	<b>(d)</b>	<b>Q. 46</b>	<b>(a)</b>
<b>Q. 8</b>	<b>(d)</b>	<b>Q. 21</b>	<b>(c)</b>	<b>Q. 34</b>	<b>(d)</b>	<b>Q. 47</b>	<b>(b)</b>
<b>Q. 9</b>	<b>(d)</b>	<b>Q. 22</b>	<b>(a)</b>	<b>Q. 35</b>	<b>(c)</b>	<b>Q. 48</b>	<b>(a)</b>
<b>Q. 10</b>	<b>(d)</b>	<b>Q. 23</b>	<b>(c)</b>	<b>Q. 36</b>	<b>(a)</b>	<b>Q. 49</b>	<b>(b)</b>
<b>Q. 11</b>	<b>(b)</b>	<b>Q. 24</b>	<b>(a)</b>	<b>Q. 37</b>	<b>(a)</b>	<b>Q. 50</b>	<b>(b)</b>
<b>Q. 12</b>	<b>(c)</b>	<b>Q. 25</b>	<b>(c)</b>	<b>Q. 38</b>	<b>(a)</b>		
<b>Q. 13</b>	<b>(a)</b>	<b>Q. 26</b>	<b>(a)</b>	<b>Q. 39</b>	<b>(a)</b>		

## 1. Correct Option: (c)

**Explanation:**

### **Fixed Dose Combination Drugs (FDC)**

- **Statement 1 is correct:** An FDC is a **cocktail of two or more active drug ingredients in a fixed ratio of doses.**
- According to US healthcare provider IMS Health, **almost half the drugs sold in India in 2014 were FDC, making it a world leader in combination drugs.**
- FDCs' popularity in India is due to advantages such as increased efficacy, better compliance, reduced cost and simpler logistics of distribution.
- FDCs have shown to be particularly useful in the treatment of infectious diseases like HIV, malaria and tuberculosis, where giving multiple antimicrobial agents is the norm.
- **Statement 2 is correct:** FDCs are also useful for chronic conditions especially, when multiple disorders co-exist.

### **In News:**

- According to a study, of the 110 anti-TB (tuberculosis) Fixed Dose Combinations (FDCs) available in India, only 32 (less than 30%) have been approved by the Central Drugs Standard Control Organisation (CDSCO), the country's drug regulator.

## 2. Correct Option: (c)

**Explanation:**

### **Higgs Boson**

- **Both the statements are correct:** The Higgs boson is an elementary particle in the Standard Model of particle physics, produced by the quantum excitation of the Higgs field, one of the fields in particle physics theory.
- It is named after physicist Peter Higgs, who in 1964, along with six other scientists, proposed the mechanism, which suggested the existence of such a particle.
- Its existence was confirmed by the ATLAS and CMS collaborations based on collisions in the LHC at CERN.
- In the world of particle physics, subatomic particles are difficult to observe because of their size.

- They are smaller than an atom and the wavelength of visible light, so the only way we can detect and observe their behaviour is by smashing the atomic nucleus of particles together at intense speeds (close to the speed of light), which generates vast amounts of exotic particles that are only created at high energies.
- These collisions resemble the conditions physicists believe existed during the time of the big bang.
- Thanks to particle accelerators like the Large Hadron Collider, the Relativistic Heavy Ion Collider and the (now defunct) Tevatron circular particle accelerator, physicists have made a lot of progress in designing a "theory of everything."
- This theory postulates how all the subatomic particles in the universe operates and how they interact to comprise the Universe as we know it.
- One of the most complete models that comes anywhere near producing a "theory of everything," is the Standard Model of Fundamental Particles and Interactions, which describes how particles and forces interact.
- The standard model also includes an explanation for 3 of the 4 fundamental forces of nature on a subatomic scale.

## 3. Correct Option: (b)

**Explanation:**

### **NASA's ICESat-2**

- **Statement 1 is incorrect and 2 is correct:** **NASA's ICESat-2 has mapped melting ice sheets in Antarctica and the resulting sea level rise across the globe, which could help improve climate forecasts.**
- The satellite is measuring the height of sea ice to within an inch, tracing the terrain of previously unmapped Antarctic valleys, surveying remote ice sheets, and peering through forest canopies and shallow coastal waters.
- With each pass of the ICESat-2 satellite, the mission is adding to datasets tracking Earth's rapidly changing ice. Researchers are ready to use the information to study sea level rise resulting from melting ice sheets and glaciers, and to improve sea ice and climate forecasts.



- As the name suggests, ICESat-2 is a follow-on project. The original spacecraft flew in the 2000s and pioneered the laser measurement of the height of polar glaciers and sea-ice from space. But the mission was plagued by technical problems that limited its observations to just a couple of months in every year.
- ICESat-2 will measure the average annual elevation change of land ice covering Greenland and Antarctica to within the width of a pencil, capturing 60,000 measurements every second.
- ICESat-2's Advanced Topographic Laser Altimeter System (ATLAS) measures height by timing how long it takes individual light photons to travel from the spacecraft to Earth and back.

#### 4. Correct Option: (b)

**Explanation:**

**Apsara Nuclear reactor**

- **Statement 1 is incorrect:** Apsara is the oldest of India's research reactors.
- The reactor was designed by the Bhabha Atomic Research Center (BARC) and built with assistance from the United Kingdom (which also provided the initial fuel supply consisting of 80% enriched uranium).
- Apsara first went critical on 4 August 1956.
- Apsara is a light water swimming pool-type reactor with a maximum power output of one megawatt thermal (MWt).
- **Statement 2 is correct: The reactor burns enriched uranium in the form of aluminium alloyed curved plates.** Fuel for the reactor is supplied under contract from the United Kingdom, provided that the fuel is safeguarded.
- The Apsara reactor is utilized for various experiments including neutron activation analysis, radiation damage studies, forensic research, neutron radiography, and shielding experiments.
- The reactor is also used for research and the production of radioisotopes.

**Apsara- Upgraded:**

- "Apsara-upgraded", made indigenously, uses plate type dispersion fuel elements made of Low Enriched Uranium (LEU).

- By virtue of higher neutron flux, this reactor will increase indigenous production of radio-isotopes for medical application by about fifty percent and would also be extensively used for research in nuclear physics, material science and radiation shielding.
- This development has re-emphasised the capability of Indian scientists and Engineers to build, complex facilities for health care, science education and research.

**In News:**

- The Bhabha Atomic Research Centre has recommissioned an upgraded version of 'Apsara', the country's oldest research reactor that was decommissioned almost a decade ago. Apsara is now operational as 'Apsara-U' on Trombay campus of Maharashtra.

#### 5. Correct Option: (c)

**Explanation:**

**Anti-nuclear medical kit**

- **Statement 1 is incorrect:** Institute of Nuclear Medicine and Allied Sciences (INMAS) has developed India's first indigenous medical kit for protection against nuclear warfare or radioactive leakage.
- The kit will ensure protection from serious injury and aid faster healing of wounds due to nuclear warfare or radioactive leakage.
- **Statement 2 is incorrect:** It protects and heals the radiation damage on the skin.
- The kit has been developed after 20 years of work by INMAS scientists.
- It has 25 items which include radioactive protectors which can absorb 80-90% of radiation, nerve gas agents, bandages that absorb radiation as well as tablets and ointments.
- The kit is seen as potent alternative to similar imported kits that were till now procured from US and Russia at much higher prices.
- It has been developed for armed, paramilitary and police forces only as they are first ones likely to get exposed to radiation during nuclear, chemical and biomedical (NCB) warfare or rescue operation after nuclear accident.

## 6. Correct Option: (a)

**Explanation:**

**iLint**

- **Option (a) is correct:** Germany has rolled out **world's first hydrogen-powered passenger train**.
- These locomotives named iLint trains emit zero emissions, making them eco-friendly.
- This train technology offers greener and quieter alternative to diesel on non-electrified railway lines.
- These hydrogen trains are manufactured by French TGV-maker Alstom and are commercially running on 100km route between towns and cities of Cuxhaven, Bremerhaven, Bremervoerde and Buxtehude in northern Germany.

**Hydrogen trains**

- Hydrogen trains are equipped with fuel cells that produce electricity by combining hydrogen with oxygen. This conversion process only emits steam and water, thus producing *zero emissions*. Excess energy produced is stored in ion-lithium batteries on board train.
- These trains also make very little noise.
- Moreover, hydrogen fuel cells have advantages over batteries. Instead of recharging, they can easily be re-fuelled like gas or diesel engine.
- It is also easier to build re-fuelling infrastructure for these trains at railway stations.
- These trains can run for around 1,000 km on a single tank of hydrogen, similar to the range of diesel trains.
- These trains offer attractive prospect to many cities scrambling to combat air pollution.
- The only disadvantage these hydrogen trains are that they are more expensive than fossil fuel-based trains.

## 7. Correct Option: (d)

**Explanation:**

**Dickinsonia**

- **Statement 1 is incorrect:** It is the earliest animal on geological record — a strange oval creature with rib like segments

running along its body that lived on Earth 558 million years ago.

- The fossils of this animal were recently discovered.
- **Statement 2 is incorrect:** Researchers found the fossil in a remote area near the White Sea in the northwest of Russia.
- Dickinsonia grew up to 1.4 metres in length.
- It was part of the Ediacara Biota that lived on Earth 20 million years prior to the 'Cambrian explosion' of modern animal life.
- The 'Cambrian explosion' was when complex animals and other macroscopic organisms — such as molluscs, worms, arthropods and sponges — began to dominate the fossil record.

## 8. Correct Option: (d)

**Explanation:**

**Astra Missile**

- **Statement 1 is incorrect:** **Astra is air to air beyond visual range Missile, indigenously developed by Defence Research and Development Organisation (DRDO).**
- More than 50 private and public sector industries are involved in development and production of different sub-systems of the missile.
- It is one of the smallest weapon system developed by DRDO, having length of 3.8-metre and weighing 154kg. It is single stage solid fuelled missile and has payload capacity of 15 kg conventional explosives.
- **Statement 2 is incorrect:** It can be launched from different altitudes and is capable of engaging targets at varying range and altitudes at **both short-range targets (up to 20 km) in tail-chase mode and long-range targets (up to 80 km) in head-on mode.**
- It is radar homing supersonic missile having maximum speed of Mach 4 (four times speed of sound). It possesses high Single Shot Kill Probability (SSKP) making it highly reliable.
- It is all-weather missile with active radar terminal guidance, excellent electronic counter-counter measure (ECCM) features, smokeless propulsion and

process improved effectiveness in multi-target scenario.

- It has advance on-board electronic counter-measures that jam radar signals from enemy radar, making tracking of the missile difficult.
- It is fitted with terminal active radar-seeker and an updated mid-course internal guidance system that helps missile to locate and track targets. The missile can be integrated with all fighter aircraft of IAF including Sukhoi-30 MKI, Mirage-2000, MiG-29, Jaguar and the Tejas Light Combat Aircraft (LCA).

#### In News

- Indian Air Force (IAF) has successfully undertaken series of flight trials of Astra Beyond Visual Range Air-to-Air Missile (BVR-AAM) from September 26 to October 3, 2018. The tests were conducted at Integrated Test Range (ITR), Balasore, Odisha as part of final development trials of the missile.

### 9. Correct Option: (d)

#### Explanation:

##### HOPE Probe

- **Both the statements are incorrect:** The probe will be built by an *Emirati team of engineers and experts and will be sent on a scientific voyage of discovery to the Red Planet.*
- This will mark the Arab world's entry into the era of space exploration and place the UAE among the major scientific countries that have begun programmes to explore Mars.
- The probe will be sent to explore the Red Planet by 2020. Following a journey of several months, the probe is expected to enter the Red Planet's orbit in 2021, coinciding with the 50th anniversary of the formation of the UAE.

#### In News:

- UAE has started its preparations for the upcoming Mars Mission named - HOPE.

### 10. Correct Option: (d)

#### Explanation:

##### Superbugs:

- Researchers from University of Melbourne, Australia have found that superbug

resistant to all known antibiotics and can cause severe infections or even death is spreading undetected through hospital wards across the world.

- They have discovered three variants of multidrug-resistant superbug in bacteria known as *Staphylococcus epidermidis* in samples collected from 10 countries, including strains in Europe that cannot be controlled by any drug currently in the market.
- Scientists have found that bacterium known as *Staphylococcus epidermidis* are related to better-known and more deadly MRSA superbug.
- **Both the statements are incorrect: This bacterium is found naturally on human skin and most commonly infects elderly or patients who have had prosthetic materials implanted, such as catheters and joint replacements.**
- It can be deadly, but it is usually in patients who already are very sick in hospital and can be quite hard to eradicate and the infections can be severe.
- Some strains of *Staphylococcus epidermidis* bug have made small change in its DNA that led to resistance to two of most common antibiotics.

### 11. Correct Option: (b)

#### Explanation:

##### Cyclotron-30

- **Statement 1 is incorrect:** Cyclotron is used to produce radioisotopes for diagnostic and therapeutic use for cancer care. Radiations from these isotopes are used to destroy cancer cells. It will produce radioisotopes vital for diagnosis and treatment of cancer.
- **Statement 2 is correct:** It will be first and only cyclotron facility in country to produce Germanium 68 radioisotopes, which is used in diagnosis of breast cancer.
- It will also produce Palladium 103 isotopes, which is used for the treatment of prostate cancer. In its future stages, it will also produce Iodine 123 isotopes, which can help detect thyroid cancer.
- It started working for first time when 30 MeV beam reached Faraday Cup (a metal cup designed to catch charged particles

in vacuum). The beam from this facility was used to produce fluorine-18 isotope for preparation of radio-pharmaceutical fluorodeoxyglucose (FDG), which is used for diagnose various types of cancer.

- It will start regular production by mid-2019 after supporting nuclear systems and regulatory clearances are commissioned.

#### In News:

- India's biggest cyclotron facility named Cyclone-30 became operational at Kolkata-based Variable Energy Cyclotron Centre (VECC), which comes under Department of Atomic Energy (DAE).

### 12. Correct Option: (c)

#### Explanation:

##### Facial Recognition technology

- **Statement 1 is correct:** The face recognition based passage system will allow passengers to board flights and **move across different sections of the airport using automatic biometric boarding procedure instead of manual boarding passes verification.** In this case, face will serve as boarding pass. The first implementation milestone of this system at KIA will be completed in the first quarter of 2019, with Jet Airways, Air Asia and SpiceJet passengers as first users.
- Face recognition based passage system will simplify journey of air passengers by making it paperless from registration to boarding.
- Biometric technology will identify passengers by their face as they move across airport, avoiding stops and repeated presentation of boarding passes, passports or other physical identity documents.
- It will enable seamless journey of passengers, without obstacles, waiting lines or hassles, from registration to boarding.
- **Statement 2 is correct:** On complete implementation, this **will be first end-to-end face recognition-based walk through experience in Asia and largest in the world.** It is also one of the most significant steps towards Digital India campaign endorsed by Central Government.

#### In News:

- Kempegowda International Airport (KIA) in Bengaluru, capital of Karnataka is set to become first airport in Asia to introduce face recognition based passage system technology from 2019.
- For this, Bengaluru International Airport Ltd. (BIAL), which operates KIA has signed agreement with Portuguese software firm Vision Box.

### 13. Correct Option: (a)

#### Explanation:

##### EyeROV TUNA

- EyeROV TUNA has been designed and developed indigenously by Kochi-based start-up IROV Technologies Pvt Ltd (EyeROV).
- **Option (a) is correct:** It is smart micro-ROV (Remotely Operated Vehicle) or **underwater robotic drone.**
- Its design is at par with global standard and has operational capabilities to work in harsh and mission-critical underwater environment.
- It is designed to perform visual inspection and surveys of submerged structures up to depth of 100 metres. It can be-controlled using laptop or joystick.
- It is fitted with camera that helps to give live HD video feed of the submarine environment.
- It is also equipped to perform variety of functions, including inspection of ship hulls, undersea cables or bridge moorings, fish farms, dams, port structure and bridge foundations and also in various underwater research operations.
- Its commercial use will eliminate need for costlier and riskier manual inspection by divers

#### In News

- India's first underwater robotic drone **EyeROV TUNA** was handed over to Naval Physical and Oceanographic Laboratory (NPOL) of Defence Research and Development Organisation (DRDO). This underwater drone will be used by NPOL for research and development activities which in turn would result in commercial product for defence purposes.



#### 14. Correct Option: (b)

**Explanation:**

##### **Supercomputer Pratyush**

- **Statement 2 is incorrect:** Supercomputer Pratyush will be national facility for improving weather and climate forecasts and services **under umbrella of the Ministry of Earth Sciences (MoES)**.
- Pratyush has 6.8 PF computational power installed at two MoES Institutes.
- 4.0 Peta Flops HPC facility at IITM, Pune and 2.8 Peta Flops facility at NCMRWF, Noida. (PF is a measure of a computer's processing speed).
- It will help India with better forecasts in terms of monsoon, extreme events, cyclones, tsunamis, earthquakes, air quality, lightning, fishing, hot and cold waves, flood and drought among others.
- Pratyush is fourth fastest supercomputer in world dedicated for weather and climate research. It follows supercomputing machines in Japan, US and United Kingdom.
- **Statement 1 is correct:** It **will improve rankings of Indian supercomputer from 300s to 30s in Top 500 list**, a respected international tracker of the world's fastest supercomputers.
- The key function of the High Performance Computing (HPC) facility will be monsoon forecasting using dynamical model which requires simulating weather for given month and letting custom-built model calculate impact of actual weather over coming months.
- It will enable to map regions in India at resolution of 3 km and globe at 12 km.

##### **In News**

- India's fastest and first multi-petaflops (PF) supercomputer named Pratyush was unveiled at Pune-based Indian Institute of Tropical Meteorology (IITM). The supercomputer has been named as 'Pratyush' meaning Sun.

#### 15. Correct Option: (b)

**Explanation:**

**National Viral Hepatitis Control Programme**

- The programme aims at both prevention and treatment of hepatitis which is among leading causes of liver cancer, cirrhosis of liver and acute liver failure.
- **Statement 2 is correct:** It **aims to treat minimum of 3 lakh hepatitis C cases over a period of three years** for eliminating deadly condition by 2030.
- The programme is part of National Health Mission.
- **Statement 1 is incorrect:** Under it, **expensive antiviral for hepatitis B and C infections will be made available free of cost at all government hospitals**.
- It will set up and upgrade facilities for diagnosis and treatment primarily of hepatitis B and C.
- These designated treatment centres will provide free anti-viral to hepatitis C patients.
- They will also provide hepatitis B vaccine to babies born to mothers carrying the virus within 24 hours of birth.

##### **Key strategies under the Program**

- Preventive and promotive interventions with focus on awareness generation.
- Safe injection practices and socio-cultural practices, sanitation and hygiene, safe drinking water supply, infection control and immunization
- Increasing access to testing and management of viral hepatitis.
- Promoting diagnosis and providing treatment support for patients of hepatitis B and C through standardized testing and management protocols with focus on treatment of hepatitis B and C.
- Co-ordination and collaboration with different Ministries and departments.
- Building capacities at national, state, district levels and sub-district level up to Primary Health Centres (PHC) and health and wellness centres to scale program till lowest level of the healthcare facility in a phased manner.

##### **In News:**

- Union Ministry of Health and Family Welfare in collaboration with the World Health Organisation (WHO) has launched National Viral Hepatitis Control



Programme to control viral hepatitis C on the occasion of World Hepatitis Day (July 28). The programme aims to combat viral hepatitis and reduce mortality and morbidity associated with it.

## 16. Correct Option: (c)

### Explanation:

#### Satyendranath Bose (1894-1974)

- He was an Indian Physicist best known for his role in particle Physics.
- Bose was a specialist in mathematical physics.
- A fellow of the Royal Society, Bose was awarded Padma Vibhushan in 1954, incidentally, the Padma Vibhushan was awarded for the first time in 1954 only.
- **Statement 1 is correct:** *Bose never received a doctorate nor was he awarded a Nobel Prize. He is largely forgotten and Nobel Committee has recognized all other scientists that did work on the concept, whose historic father was Satyendranath Bose.*

#### Contribution of Indian Scientists

- Meghnad Saha was his classmate and J C Bose as his teacher. In 1921, he joined the then newly created Dacca University as Reader in Physics. While teaching, he wrote a paper for deriving the Planck's Law. His paper was titled '*Planck's Law and Light Quantum Hypothesis.*'
- In 1900, Max Planck had explained in the theory of black body radiation that light is emitted in discrete amounts (quanta) rather than as a continuous wave. But his derivation of this formula was not satisfactory to other scientists, in fact even to himself. Later, Albert Einstein explained the photoelectric effect based on Planck's quanta as photons in 1905 in a paper. Einstein was awarded the Nobel Prize for this paper, not for his papers on Relativity!
- However, many of his colleagues were not fully convinced of his yet-to-be-developed photon theory. Under these circumstances, Bose re-sent the paper to Albert Einstein in June 1924, with a fervent appeal for his perusal. Einstein immediately recognised the significance of this paper. This paper was going to

substantiate and revolutionise his theory of photoelectric effect. Einstein himself translated Bose's paper into German and sent it to *Zeitschrift für Physik* with his endorsement for publication. With his demigod status, Einstein's words carried much weight. It was promptly published, and immediately Bose shot into prominence.

- After this, Einstein personally invited Bose to work with him, and their efforts culminated in the **Bose-Einstein statistics**, *an important and seminal phenomenon in quantum physics*. His work was wholeheartedly supported and appreciated by the leading lights in quantum theory, such as Louise de Broglie, Erwin Schroedinger, Paul Dirac and Heisenburg.
- **Statement 2 is correct:** In honour of Bose, Paul Dirac coined the word 'Boson' for those particles which obey Bose's statistics. In atomic theory, only Fermions (named after Enrico Fermi) and Bosons were named after physicists.

## 17. Correct Option: (c)

### Explanation:

#### Mass Embryo Transfer (ETT)

- ETT is one of the most important reproductive biotechnologies where male and female genetic material can be utilized for faster improvement of livestock.
- It has revolutionized breeding strategies in Bovines as tool to optimize genetic improvement in cattle.
- Using it, embryos of higher genetic merit indigenous bovines such as Sahiwal, Gir, Red Sindhi, Ongole, Deoni and Vechur are being transferred in to surrogate cows.
- Government is taking this technology to doorstep of farmers for rapid propagation of high genetic merit indigenous cattle.

#### Benefits of using ETT:

- **Statement 1 is correct:** Farmer can get 5-6 fold increase in number of off-springs.
- So born calves will be of high genetic merit
- **Statement 2 is correct:** Off-springs born will be free from diseases.

## 18. Correct Option: (c)

### Explanation:

#### Scorpene Submarine

- **Statement 1 is correct:** These are **diesel-electric attack submarines equipped with anti-ship missile**.
- The first four submarines will be conventional, while last two will be equipped with the Air Independent Propulsion (AIP) system, which will enable them to stay underwater for longer duration.
- The state-of-the-art Scorpene submarines have superior stealth and ability to launch crippling attacks with precision-guided weapons.
- **Statement 2 is correct:** The **attacks can be carried out with torpedoes both while submerged or on surface — in all war theatres, including the tropics**.
- INS Karanj has been named after older submarine as per Indian naval tradition that was in operation from 1969 to 2003. It served country for 34 years and was also part of operations in 1971.
- INS Karanj has an overall length of 67.5 metres and height of about 12.3 metres. Its hull form, fin and hydroplanes are specifically designed to produce minimum underwater resistance.
- In all, six scorpion submarines being indigenously built at MDL under Project 75 with help of French naval defence and energy company DCNS. The first of these, INS Kalvari was commissioned in December 2017 and second, INS Khanderi is undergoing sea trials. Remaining 4 submarines will be inducted gradually by 2020.

#### In News:

- Indian Navy has launched Scorpene submarine INS Karanj at the Mazagon Dock Shipbuilders Ltd (MDL), Mumbai, Maharashtra. It the third Scorpene class submarine built by MDL under ambitious Project 75 of the Indian Navy.

## 19. Correct Option: (b)

### Explanation:

- **Statements 1 is incorrect:** India and Russia have signed an agreement for

the leasing of a nuclear-powered attack submarine for the Indian Navy for a period of 10 years.

- **Statements 2 is correct:** Russia will be delivering the Akula class submarine, to be known as Chakra III, to the Indian Navy by 2025.
- India had earlier leased two nuclear submarines from Russia. They are INS Chakra leased in 1988 under a three-year lease and second INS Chakra was taken on lease in 2012 for a period of 10 years.
- Russia will lease Akula class submarine for the period of 10 years at the cost of USD 3 billion.
- Chakra III will be equipped with Indian communication systems and sensors, including the indigenously-developed USHUS integrated sonar system and Panchendriya sonar.
- Chakra III get a unified submarine sonar and tactical control system, which are already in use on the INS Arihant. The Chakra III will also get a refurbished hull.
- Chakra III weighing around 8,140-ton will have a submerged speed of 30 knots and an operating depth of 530 meters and will be capable of carrying a crew of 73.
- Chakra III will also be loaded with four 650-millimetre and four 533-millimetre launch tubes for firing Type 65 and Type 53 torpedoes. Both of these torpedoes are made in Russia.
- Chakra III will be powered with 190 mW nuclear reactor.

## 20. Correct Option: (b)

### Explanation:

#### Down Syndrome

- Down Syndrome is a chromosomal condition associated with intellectual and learning disabilities.
- Delayed development and behavioural problems are often reported in children with Down Syndrome.
- **Statement 1 is incorrect:** It is **not a genetic disorder**.
- Persons with Down Syndrome have 47 chromosomes as compared to 46 in majority of people.

- This one Extra chromosome causes its own impact and slows down learning process.
- **Statement 2 is correct:** It *impacts neurological functioning causing impairment of intellectual* functions e.g. analytical thinking, complex abstractions and judgement.
- People with Down Syndrome can and do lead full and rewarding lives and contribute as valued and equal members of their communities.
- Every year 20 to 22 thousand children take birth with Down Syndrome in our country and the need of the hour is to bring them in the mainstream.

#### In News:

- The National Conference was organized by The National Trust for the welfare of persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities under M/o SJ&E in collaboration with Muskaan, a registered organisation of the National Trust.

### 21. Correct Option: (c)

#### Explanation:

##### Raman Effect

- **Statement 1 is correct:** The Raman Effect is a *change in the wavelength of light that occurs when a light beam is deflected by molecules*.
- Some part of light beam after passing through a transparent medium gets scattered.
- This phenomenon of scattering of light is termed as Raman Scattering and the cause of scattering is called the Raman Effect.
- The wavelength of these scattered rays is different from that of the incident rays of light.
- This phenomenon was explained/discovered by Indian physicist Chandrasekhara Venkata Raman (CV Raman) on February 28, 1928.
- **Statement 2 is correct:** This discovery was *awarded with the Nobel Prize in Physics in 1930*.
- Feb 28 is observed as National Science Day in India.

### 22. Correct Option: (a)

#### Explanation:

##### Machine to Machine (M2M) Communication

- **Statement 1 is correct:** *Unlike person-to-person (P2P) communication, M2M technologies involve communication between two devices*.
- The technology is basis for automated information exchange between machines.
- **Statement 2 is incorrect:** It *enables wired and wireless devices to talk to each other* using sensors.
- It is also a key component of the emerging Internet of Things (IoT) revolution.
- TRAI acknowledged its potential in National Telecom Policy 2012.
- Applications of self-communicating machines using M2M communications can be deployed in new-age infrastructure projects and various industry verticals such as smart cities, smart grids, smart homes, smart transportation and smart health sectors.

### 23. Correct Option: (c)

#### Explanation:

##### MILAN Exercise

- **Statement 1 is correct:** *MILAN is congregation of littoral navies conducted biennially by Indian Navy under aegis of the Andaman and Nicobar Command*.
- **Statement 2 is incorrect:** It *was first held in 1995*. In the first edition, only four littoral navies had participated in it.
- Now it has now grown into prestigious international event and encompasses participation by maritime forces from not just Bay of Bengal and South East Asia but larger Indian Ocean Region (IOR).
- It provides effective forum to participating navies to come together to discuss common concerns in the Indian Ocean Region and forge deeper cooperation among friendly navies.
- Milan 2018 will witness diverse mix of professional exercises and seminars, social events and sporting fixtures.

- The interactions at event encompass sharing of views and ideas on maritime good-order and enhancing regional cooperation for combating unlawful activities at sea.
- **Statement 3 is correct: 16 countries participating in this edition of exercise include** Australia, Malaysia, Maldives, Mauritius, Myanmar, New Zealand, Oman, Vietnam, Thailand, Tanzania, Sri Lanka, Singapore, Bangladesh, Indonesia, Kenya and Cambodia.
- The social interactions planned in Milan 2018 include display by bands of the Indian Navy and Indian Army, ship visits and colorful cultural evenings. Milan 2018 aims to showcase the rich heritage and pristine natural beauty of A&N Islands to foreign visitors.

#### In News:

- The Indian Navy is going to host 16 countries for multi-national 2018 MILAN exercise at Port Blair in Andaman and Nicobar (A&N) islands from March 6 to 13, 2018. The eight-day mega naval exercise will be held under aegis of Andaman and Nicobar Command with theme of 'Friendship Across the Seas'.

#### 24. Correct Option: (a)

##### Explanation:

##### Defence Industrial Corridor

- The important features about the Tamil Nadu Defence Industrial Corridor are:
- It is also called as Tamil Nadu Defence Production Quad as the nodal cities of Chennai, Hosur, Salem, Coimbatore and Tiruchirappalli form a quadrilateral with one of them at the centre.
- The five nodal cities already have existing defence ecosystem in the form of ordnance factory boards, vendors working with defence PSUs, and other allied industries.
- Together with helping in accelerated growth and regional industry agglomeration, the defence corridor will also facilitate a well-planned and efficient industrial base which will lead to increased defence production in the country and the region.
- The corridor will help the industry to integrate with the global supply chain of Defence manufacturing.

- **Statement 1 is correct: Tamil Nadu Defence Industrial Corridor would be a specialised facility of aero component manufacturing.**
- **Statement 2 is incorrect: Tamil Nadu Defence Industrial Corridor is the country's second defence industrial corridor after the first one was launched in Aligarh, Uttar Pradesh August last year.**
- Tamil Nadu currently ranks 4th in exports with 9.8% of India's total exports. The corridor will further expand the exporting opportunities from the state.

#### In News:

- The Union Defence Minister Nirmala Sitharaman inaugurated the Tamil Nadu Defence Industrial Corridor. During the inauguration, investments worth over Rs 3,038 crore in this defence corridor were announced. Lockheed Martin, a global security giant, also announced its intention to invest in the corridor.

#### 25. Correct Option: (c)

##### Explanation:

##### Nerve Agents

- **Statement 1 is correct: Nerve gases are among the most lethal form of chemical weapons.**
- They notably have no use other than in chemical warfare.
- The CWC lists chemicals under various degrees of manufacturing restriction.
- Under this, the nerve gases are among the most restricted.
- Nerve gas weakens the mechanism within the body responsible for the conduction of nerve impulses.
- Acetyl cholineesterase is a compound that catalyses the breakdown of the neurotransmitter acetylcholine.
- Nerve gas prevents acetylcholinesterase from performing its normal function of breaking down acetylcholine.
- It leads to the muscles going into a state of uncontrolled contraction, a sign of paralysis or a seizure-like state.
- Death usually happens because paralysis extends to the cardiac and respiratory muscles.



- Other symptoms could include dilation of pupils, sweating and gastrointestinal pain etc.
- Nerve agents can also be absorbed through the skin.

#### What is Novichok?

- As restrictions on weapons are based on chemical formulae, newer molecules can bypass restrictions.
- Countries thus started to develop newer weapons to bypass the restrictions.
- **Statement 2 is correct: This naturally led to the emergence of nerve agents and that is how Novichok evolved.**
- Novichok is said to be 5-8 times more lethal than VX nerve agent.
- Also, its effects are rapid, usually within 30 seconds to 2 minutes.

## 26. Correct Option: (a)

#### Explanation:

##### Tuberculosis in India

- India accounts for about a quarter of the global TB burden.
- **Statement 1 is incorrect: India has set the target to eliminate Tuberculosis in India by 2025.**
- To evolve a strategy in this regard, India has put in place National Strategic Plan 2017 – 2025 which sets out the government plans of how the elimination of TB can be achieved.

#### What does the Elimination of a disease stand for?

- **Statement 2 is correct: Elimination of a disease is defined by the World Health Organisation (WHO) as there should be less than 1 case of TB for a population of a million people.**
- As a step towards eliminating TB, India has made following progress in 2018:
- In 2018, 5, 36,752 TB patients have been notified from the private sector. There has been a 40% increase in TB notification from the private sector as compared to 2017.
- 44,517 (8%) TB patients were given anti-TB drugs from the programme.

- As per State reports till 25.01.2019, 40% notified TB patients, 35% treatment supporters and 8% private practitioners have been paid incentives through DBT.

#### Elimination of Tuberculosis

- The government has envisioned following strategic steps to eliminate TB by 2025:
  - A partnership with the private sector has been envisaged under Joint Effort for Elimination of Tuberculosis (JEET) for the elimination of TB by 2025, five years ahead of the global schedule.
  - To increase the reporting from the private sector, public-private support agency approach has been initiated.
  - Indian Medical Association has been roped in for large scale sensitization and advocacy with private practitioners with standardised digital material.
  - States have been supplied anti-TB drugs to provide for TB patients notified from private sector based on demand.
  - States have been guided to keep programme provided anti-TB drugs at private practitioner's clinic or pharmacy
  - To ensure the TB patients are not deprived of DBT benefit flexibility to provide the benefit through the existing bank account of a blood relative has been given.
  - States have also been advised to facilitate opening of zero balance accounts for TB patients, if necessary, under the Pradhan Mantri Jan Dhan Yojana (PMJDY) and Indian Postal Bank.

#### In News:

- The Minister of State for Health and Family Welfare, Shri Ashwini Kumar Choubey has stated in parliament that government is committed to achieve the target of TB elimination by 2025 and not considering any revision in targets.

## 27. Correct Option: (c)

#### Explanation:

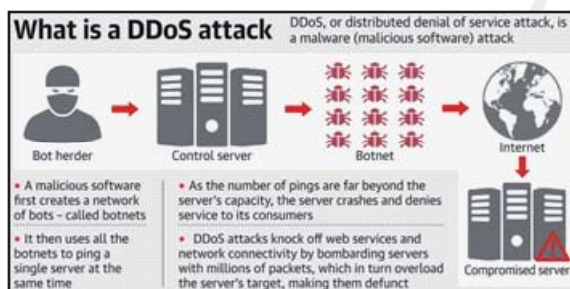
##### Sapochi

- **Statement 1 is correct:** Cybersecurity agencies have detected **a new malware**



**called Saposhi that can take over electronic devices and use them for Distributed Denial of Service (DDoS) attacks.**

- Saposhi Malware is capable of taking over electronic devices and turning them into bots (device taken over by malware) which can then be used for any purpose, including DDoS attacks which, with enough firepower, can cripple entire industries.
- **Statement 2 is correct: Computer Emergency Response Team (CERT), a Central government body that deals with cyberattacks has so far has not issued any alert regarding Saposhi malware.**
- Saposhi is similar in its intensity to Reaper malware, which was taking over millions of devices at rate of 10,000 devices per day. In October 2017, CERT had issued alert about Reaper which is highly evolved malware capable of hacking devices like Wi-Fi routers and security cameras and also hiding its own presence in bot.



- In DDoS attacks, malware first creates network of bots — called botnet and then uses botnet to ping single server beyond its capacity at same time.
- As number of pings are far beyond server's capacity, server crashes and denies service to its consumers. Malwares like Saposhi, Reaper and Mirai are primarily are used for DDoS attacks.
- For example, if large botnet attacks server of fleet cab provider, its server will crash, and scores of consumers will be unable to avail of its services, causing chaos in daily commuting as well as massive losses to the company.

## 28. Correct Option: (b)

**Explanation:**

**Shakti Sthala solar park**

- **Option (b) is correct:** The first phase Shakti Sthala solar park having total capacity of 2,000 megawatts (MW) was **inaugurated in drought-prone Pavagada region of Tumkur district, Karnataka.** It is claimed to be world's largest solar park.
- The park ties in with the Central Government's scheme to generate 100 gigawatts (GW) of solar power by 2020. It has been executed within record time of two years, with zero land acquisition
- The park's development was initiated with creation of Karnataka Solar Power Development Corp. Ltd (KSPDCL) in March 2015 as joint venture between Karnataka Renewable Energy Development Ltd (KREDL) and Solar Energy Corporation of India (SECI).
- KSPDCL had used "plug and play" model for development of park, under which it acquires and develops land as blocks for solar power generation, embedded with required government approvals and gives it out to solar power developers (SPDs) through auctions.
- The solar park is spread over 13,000 acres and five villages. The land was taken on 25-year lease by government from around 2,300 farmers. In return, these farmers are paid annual rental of Rs.21,000 per acre, with scope for 5% increase every two years.
- The first phase of the Rs. 16,500 crore park will generate 600MW power, while the balance 1,400MW will be commissioned in second phase by end year 2018. The park will decrease dependence on traditional power sources and move to environmentally friendly ones to meet growing power needs of state.
- It will create employment and act as incentive for natives and farmers to explore new opportunities of socio-economic growth in the region. It will also curb mass migration of people from the region which has been declared drought-hit in 54 of the last 60 years.

## 29. Correct Option: (b)

**Explanation:**

**Rydberg polarons**

- **Statement 1 is incorrect:** These **atoms are held together by a weak bond and is created at very cold temperatures.**

- It uses ideas from two different fields: Bose Einstein Condensation and Rydberg atoms.
- **Statement 2 is correct:** A 'Rydberg atom' *is an atom in which an electron has been kicked out to a very large orbit.*
- These have interesting properties and have been studied for a long time.

### 30. Correct Option: (a)

**Explanation:**

#### Lyrid meteor shower

- The annual Lyrid meteor shower is set to reach a peak.
- **Statement 1 is correct:** The Lyrid meteor shower is *one of the oldest known meteor showers*
- They are caused by the Earth's annual trip through a cloud of dust and debris left behind by the comet C/1861 G1 Thatcher.
- **Statement 2 is incorrect:** It is classified as a *medium-strength shower.*
- A meteor shower happens when Earth passes through the path of a comet.
- When this happens, the bits of comet debris create streaks of light in the night sky as they burn up in Earth's atmosphere.
- Bits of debris which enter Earth's atmosphere are called meteors.
- A meteorite is a solid piece of debris from an object, such as a comet, asteroid, or meteoroid which survives its passage through the atmosphere to reach the surface of a planet or moon.

### 31. Correct Option: (d)

**Explanation:**

- **Option (d) is correct:** The *Indian Institute of Technology (IIT)-Delhi* has installed Massive Multiple-Input, Multiple-Output (MIMO) lab on campus for standardisation, R&D and manufacturing of 5G equipment. It will be the first of its kind 5G lab in the country and has been set-up at Bharti School of Telecommunication Technology and Management.
- The lab will serve as 5G base station prototype that will be used to test and

verify algorithms and also develop complete 5G base station. It will help in manufacturing of 5G base stations in India with support and collaboration from industry. It will also be instrumental in generating skilled manpower in this technology.

- In this Massive MIMO lab, several antennas are deployed at prototype base station to allow network to communicate reliably with very large number of mobile terminals simultaneously at same time and on same frequency channel.
- The large antenna array also improves system power efficiency as mobile terminals will now be required to radiate 10 times lesser power than in 3G/4G systems. In regular 3G/4G base station technology, only few antennas are deployed.

### 32. Correct Option: (a)

**Explanation:**

#### Gravity RAT Malware

- The RAT was first detected by Indian Computer Emergency Response Team, CERT-In, on various computers in 2017. It is designed to infiltrate computers and steal the data of users, and relay the stolen data to Command and Control centres in other countries.
- The 'RAT' in its name stands for Remote Access Trojan, which is a program capable of being controlled remotely and thus difficult to trace.
- The latest update to the program by its developers is part of GravityRAT's function as an Advanced Persistent Threat (APT), which, once it infiltrates a system, silently evolves and does long-term damage.
- **Option (a) is correct:** GravityRAT is unlike most malware, which are designed to inflict short term damage. It lies hidden in the system that it takes over and keeps penetrating deeper.
- GravityRAT has now become self aware and is capable of evading several commonly used malware detection techniques.
- GravityRAT infiltrates a system in the form of an innocuous looking email attachment, which can be in any format, including MS Word, MS Excel, MS PowerPoint, Adobe Acrobat or even audio and video files.

- The other concern is that the Command and Control servers are based in several countries. The data is sent in an encrypted format, making it difficult to detect exactly what is leaked.
- CERT-In had issued an alert for it last year, with advisory asking users to review cybersecurity measures and update anti-malware tools.

#### In News:

- Gravity RAT, a malware allegedly designed by Pakistani hackers, has recently been updated further and equipped with anti-malware evasion capabilities.

### 33. Correct Option: (d)

#### Explanation:

##### Lassa Fever

- Lassa fever or Lassa hemorrhagic fever (LHF) is caused by Lassa virus.
- **Statement 1 is incorrect:** This disease is mainly **prevalent in West Africa countries** such as Nigeria, Liberia, Sierra Leone, Guinea, and Ghana.
- It results in 5000 deaths every year.
- **Statement 2 is incorrect:** It's a zoonotic disease transmits to human from a **species of mouse**.

### 34. Correct Option: (d)

#### Explanation:

##### Start-up States and UTs Ranking Framework

- **Statement 2 is correct:** The **framework aims to foster competitiveness and propel states/UTs to act pro-actively in start-up matters**.
- This ranking will help states to bring progress made in their start-up ecosystem and also make different states learn and replicate good practices.
- Its objective is to encourage States/UTs to take proactive steps towards strengthening Start-up ecosystems at local level.
- It will also measure impact of each step initiated at local level for building strong Start-up ecosystem. It will also enable continuous learning through the dissemination of good practices.

- **Statement 3 is correct:** It is **based on feedback collected from Start-up ecosystem stakeholders**, which include start-ups, mentors, investors, accelerators, incubators and government bodies.
- The parameters of this feedback focus on all actions and initiatives undertaken by states on or before March 2018.
- These parameters include having start-up cell or helpline and mobile or web portal for queries, size of start-up mentor network created by state government and number of key incubators for incubation support to start-ups.
- It also gives greater thrust like seed funding support, women entrepreneurship.

#### In News:

- **Statement 1 is correct:** **Department of Industrial Policy and Promotion (DIPP) under Commerce Ministry has unveiled Start-up-India ranking framework** to rank states/UTs based on measures regions that have taken to foster entrepreneurship.
- It was launched by Union Minister of Commerce and Industry at a function held in New Delhi.

### 35. Correct Option: (c)

#### Explanation:

##### Nipah Virus (NiV) Infection

- **Statement 1 is incorrect:** Nipah virus (NiV) infection is **zoonotic disease that causes severe disease in both animals and humans**.
- Fruit bats of the Pteropodidae Family, Pteropus genus are natural host of the virus.
- **Statement 2 is correct:** It was **first identified during outbreak of disease that took place in Kampung Sungai Nipah, Malaysia in 1998**.
- The virus spread fast and is mostly fatal. Infected bats shed virus in their excretion and secretion.
- **Statement 3 is incorrect:** **The virus cannot be transmitted through air**. But it is transmitted through direct contact with infected bats, pigs. Human to Human transmission from other NiV-infected people is also reported

- NiV infection can cause acute respiratory syndrome, breathing trouble, inflammation of the brain, fever, headache, drowsiness, disorientation and delirium. Patient can slip into coma within 48 hours. The mortality rate of patients infected with it is reportedly 70%. It is capable of causing diseases in domestic animals too. The
- There is no vaccine for disease either for humans or animals. The main treatment for those infected is intensive supportive care and supportive medicines. In disease prone areas, fruits strewn on the ground should not be eaten, for safety.

#### In News:

- Kerala was on high alert as rare and deadly Nipah Virus (NiV) infection which was detected for the first time in the state. Its traces were found in blood and body fluid samples of two persons who died of viral fever in Kerala's coastal Kozhikode region. It was confirmed by laboratory results from National Institute of Virology, Pune.

### 36. Correct Option: (a)

#### Explanation:

#### GRACE-FO (Gravity Recovery and Climate Experiment Follow-On)

- **Statement 2 is incorrect:** GRACE-FO is *joint project between National Aeronautics and Space Administration (NASA) and German Research Center for Geosciences (GFZ)*.
- **Statement 1 is correct:** It is follow-on mission to *original GRACE mission, which had mapped Earth's water and ice by measuring changes in Earth's gravity field* from 2002 to 2017.
- GRACE-FO will pick up where GRACE left off to continue study of rising sea levels, melting of glaciers and polar ice caps and other changes in distribution of water on Earth.
- The two GRACE-FO satellites will orbit together at 490km altitude near-polar orbit, circling Earth every 90 minutes.
- To measure Earth's gravity, two satellites will orbit around Earth together, with one trailing behind other at distance of 220km. The instruments on board of these satellites are so sensitive that they can detect changes with precision of about 1 micrometer (i.e. about one-tenth of a human hair over long distance).

- These satellites have payload called Laser Ranging Interferometer. It can precisely measure gravity field changes due to change in separation distance between two satellites, revealing information about what kinds of features they are flying over. Earth is not perfect sphere) different features, like mountains and oceans, across its surface, so gravitational pull exerted on these satellites is not consistent. When gravity field changes, separation between two satellites changes slightly.

#### In News:

- SpaceX has successfully launched twin NASA satellites GRACE-FO (Follow-On) that will track Earth's water Cycle i.e. water movement and ice-melt. It was launched on board of SpaceX's pre-flown Falcon 9 Rocket from Vandenberg Air Force Base in California, US.

### 37. Correct Option: (a)

#### Explanation:

#### Quadrivalent vaccine

- While a trivalent influenza vaccine contains both A and B subtype viruses, it has only one of the B subtype virus, the quadrivalent vaccine offers a greater breadth of protection as it includes both B subtype viruses.
- It is because of a greater breadth of protection that a few other companies too have shifted from a trivalent to a quadrivalent vaccine.
- **Statement 1 is incorrect:** *Since the vast majority of influenza vaccines manufactured were trivalent till recently*, the **World Health Organisation (WHO)** used to recommend two A subtypes and one B subtype, plus an optional fourth strain (the other B virus strain).
- The quadrivalent vaccine will contain four influenza virus strains (two A subtypes and two B subtypes — H1N1 and H3N2, and Victoria and Yamagata respectively).
- The viruses used in the vaccine are killed and this eliminates the possibility of the virus in the vaccine itself causing infection.
- **Statement 2 is correct:** In India, *the vaccine will be available as a single dose pre-filled syringe*



- Eventually, it will be available in a vial for public health use.

#### In News:

- **Sanofi Pasteur's injectable influenza vaccine (FluQuadri)** containing two A virus strains — H1N1 and H3N2 — and two B virus strains — Victoria and Yamagata — for active immunisation of adults of age 18 to 64 years was approved in May last year by the **Drug Controller General of India (DCGI)**.
- Sanofi's quadrivalent influenza vaccine was licensed for use by the U.S. Food and Drug Administration (FDA) in 2013; it is licensed in 26 countries.

### 38. Correct Option: (a)

#### Explanation:

##### KATRIN experiment

- The KATRIN experiment is currently set up and commissioned on the Campus, North of the Karlsruhe Institute for Technology.
- The experiment is a collaboration between national and international partners with currently more than 150 scientists, engineers, technicians and students.
- **Option (a) is correct:** KATRIN *measures the neutrino mass* in a model-independent way via ultrahigh precision measurements of the kinematics of electrons from beta-decay.

##### Neutrinos:

- Neutrinos are the most abundant massive elementary particles in nature. Due to their minimalistic properties they are key particles for understanding physics on the smallest scale (elementary particle physics) up to the largest scale – the universe (cosmology).
- Neutrinos are the only elementary particles of matter, which do not carry electrical or strong charge and thus are blind to the electromagnetic and the strong interaction and cannot be bound.
- In the context of particle physics they participate only in the weak interaction. This made neutrinos the most prominent candidate to explore with them the properties of the weak interaction.

### 39. Correct Option: (a)

#### Explanation:

##### Pinaka Missile

- **Statement 1 is incorrect:** It is jointly developed by Pune based Armament Research & Development Establishment (ARDE), Defence Research and Development Laboratory (DRDL), Hyderabad and RCI.
- **Statement 2 is correct:** It is fired using **multi-barrel rocket launcher (MBRL)** which can fire 12 Rockets loaded with explosives within 44 seconds and destroy target area of 4 sq km at a time.
- It has capability to incorporate several types of warheads makes it deadly for enemy as it can even destroy solid structures and bunkers.
- The quick reaction time and high rate of fire of system gives an edge to Army during low amount conflict situation. It already has been inducted into Indian Army.

##### Upgraded Pinaka

- The guided version is Pinaka rocket (Pinaka mark-II) has evolved from earlier version of unguided Pinaka mark-I.
- The upgraded Pinaka mark-II has been fitted with navigation, guidance and control kit developed by Research Centre, Imarat (RCI).
- The conversion has helped to enhance range of Pinaka to more than 70 km (from earlier 40 km) and accuracy to 50m (from earlier 500m).

#### In News:

- The Defence Research and Development Organisation (DRDO) has successfully test-fired upgraded guided version of Pinaka Rocket from Proof & Experiment Establishment (PXE) at Chandipur, Odisha. During the tests, two rounds were conducted and some more rounds have been planned.

### 40. Correct Option: (c)

#### Explanation:

##### Coloured X-Ray on Human

- **Statement 1 is correct:** The *new device is based on the traditional black-and-white X-ray* but incorporates particle-tracking technology called Medipix developed by European Organization for Nuclear Research (CERN).



- The Medipix technology developed by CERN works like camera detecting and counting individual sub-atomic particles as they collide with pixels while its shutter is open.
- **Statement 2 is correct:** This allows for **high-resolution, high-contrast pictures**.
- Its small pixels and accurate energy resolution makes this new imaging tool able to get images that no other imaging tool can achieve.
- The technology is being commercialised by New Zealand Company MARS Bio imaging, linked to the universities of Canterbury and Otago which helped develop it.
- This colour X-ray imaging technique can produce clearer and more accurate pictures and help doctors give their patients more accurate diagnoses. The images very clearly show difference between bone, muscle and cartilage and also the position and size of cancerous tumours.

#### In News:

- Scientists from New Zealand have performed world's first-ever 3-D, colour X-ray on human. It has potential to improve the field of medical diagnostics.

#### 41. Correct Option: (d)

##### Explanation:

- **Statement 2 is correct:** Indian IT industry's apex body National Association of Software and Services Companies (NASSCOM) has launched its Centre of Excellence for the Internet of Things (CoE – IoT) at **Gurugram, Haryana**.
- **Statement 3 is correct:** This centre was launched in collaboration with Haryana government and is **part of nationwide collaborative initiative involving the Ministry of Electronics and Information Technology (MeitY)**.
- **Statement 1 is correct:** It aims to act as perfect collaboration for innovation and high-end technologies.
- It will provide one of the largest innovation platforms for enabling IOT revolution through connected devices using emerging technologies.

- It will provide platform to best minds from industry, academia, start-ups and government to drive culture of collaboration and co-creation to find solutions to accelerate India's economic development.
- It will also serve as platform for intelligence-sharing and technology collaboration between stakeholders to build collective IoT capabilities.

#### 42. Correct Option: (c)

##### Explanation:

##### World Intellectual Property Organisation (WIPO)

- **Statement 1 is correct:** It is the **global body for promotion and protection of intellectual property rights (IPR)**.
- **Statement 2 is correct:** It is **one of the 15 specialized agencies of United Nations (UN)**.
- **Statement 3 is correct:** It was established in 1967 and is **headquartered in Geneva, Switzerland**.
- Its mandate is to encourage creative activity, to promote the protection of intellectual property throughout the world.
- **Statement 4 is incorrect:** It encourages and provides assistance to all its 188 member countries in formulating national IPR policy however it **does not dictate or prescribe any mandatory measures**.
- India is a member of WIPO and party to several treaties administered by WIPO.

#### 43. Correct Option: (c)

##### Explanation:

##### 5G

- **Statement 1 is correct:** 5G is **wireless communication technology based on third-generation partnership project (3GPP)**.
- It is next generation mobile networks technology after 4G LTE networks.
- It is expected to offer enhanced mobile broadband (eMBB) through R15 repeaters that can cater to coverage requirements.
- **Statement 2 is correct:** The **5G wireless technology will offer far greater upload and download speed i.e. 100 times**

**faster internet data speed than current 4G networks.**

- It has potential to demonstrate spectral efficiency and potential for diversified services such as Internet of Things (IoT) and augmented reality (AR)/virtual reality (VR).
- High data speed offered by 5G network will help cloud systems to stream software updates, music, and navigation data to driverless cars. Moreover, it holds the key to growth of artificial intelligence (AI) systems and enhances IoT.

#### 44. Correct Option: (b)

**Explanation:**

**Ballistic Missile Interceptor Advanced Area Defence (AAD)**

- AAD is an anti-ballistic missile designed to intercept incoming ballistic missiles in the endo-atmosphere at an altitude of 30 km (19 mi)
- **Statement 2 is correct:** AAD is a **single-stage, solid-fuelled missile**.
- Guidance is provided by an inertial navigation system.
- The endo-atmospheric missile, capable of intercepting incoming targets at an altitude of 15 to 25 kms was launched against multiple simulated targets of 1500 km class ballistic missile.
- One target among simultaneously incoming multiple targets was selected on real-time, the weapon system radars tracked the target and the missile locked on to it and intercepted the target with a high degree of accuracy.
- The complete event including the engagement and interception was tracked by a number of electro-optical tracking systems, radars and telemetry stations.

**In News:**

- **Statement 1 is incorrect:** **DRDO has conducted the successful test of the Ballistic Missile Interceptor Advanced Area Defence (AAD)** from Abdul Kalam Island, Odisha.

#### 45. Correct Option: (b)

**Explanation:**

**Uakitite**

- **Option (b) is correct:** It is a **new mineral discovered in a meteorite in Eastern Russia**.
- It is named "uakitite" after the Uakit region of Siberia where the meteorite was discovered.
- 98% of the Uakit meteorite is an iron alloy called kamacite, which so far has only been found in other meteorites. The other two percent is comprised of minerals that form in space.
- Scientists don't know a lot more about this mysterious space rock as they were unable to obtain all physical and optical properties of the mineral because of its small size.

#### 46. Correct Option: (a)

**Explanation:**

**Scutoid**

- **Option (a) is correct:** Scientists have identified **new shape called scutoid** while studying epithelial cells. Epithelial tissue is one of four kinds of tissue that forms human body which acts as safety shield of body that make up cell walls lining our blood vessels and organs.
- Scutoid shape has five sides on one end and six on the other and a triangular surface on one of its longer edges.
- It is completely new to geometry and resembles beetle's scutellum (shield-like structure) from top-down view.
- Scientists had used computer modelling and imaging to identify this shape.
- It had produced strange, prism-like shape, one with six sides on one end, five on other, and strange triangular protrusion coming out of one of sides.
- Scientists had used micro-copy and computer imaging to supplement findings of computer modelling by taking up-close look at epithelial tissues of fruit flies and zebrafish. As predicted, they discovered scutoid shape.

#### 47. Correct Option: (b)

**Explanation:**

**National Wildlife Genetic Resource Bank**

- **Option (b) is correct:** **National Wildlife Genetic Resource Bank** was

inaugurated at Centre for Cellular and Molecular Biology's (CCMB) Laboratory of Conservation of Endangered Species (LaCONES) facility in **Hyderabad, Telangana**.

- It is **India's first genetic resource bank** where genetic material will be stored for posterity which will further the cause of conservation of endangered and protected animals.
- It is equipped with sophisticated equipment to preserve the genetic resources that could be utilised to virtually resurrect an animal species in case it goes extinct.
- It will cryopreserve living cell lines, gametes and embryos of endangered wild animal species in India. For cryogenic preservation, researchers at CCMB-LaCONES will use liquid Nitrogen that is cooled down to as low as minus 195 degrees Celsius.
- It will aid wild life conservation efforts by taking up artificial reproduction, conducting studies in evolution biology and wildlife medicine.
- Thus, it will also help in protecting India's biodiversity and environment. So far this bank has collected and preserved genetic resources of 23 species of Indian wild animals.

#### 48. Correct Option: (a)

**Explanation:**

**National Institute of Food Technology Entrepreneurship and Management (NIFTEM):**

- **Statement 1 is incorrect:** NIFTEM is the brainchild of the **Ministry of Food Processing Industries (MoFPI) Government of India**.
- MoFPI in its Vision document-2015, envisaged creation of a world-class institution to cater to the various stakeholders such as entrepreneurs, food processing industry, exporters, policy makers, government and existing institution.
- **Statement 2 is correct:** NIFTEM will **work actively for assisting in setting up food standards**, businesses incubation and can also include knowledge sharing.

- **Statement 3 is correct:** It would also be an **apex institution in the field of food technology and management**, networking and co-ordinating with other institutions in the same field in India and Abroad.

#### 49. Correct Option: (b)

**Explanation:**

**Two-factor authentication (2FA)**

- Two-factor authentication (2FA), sometimes referred to as two-step verification or dual factor authentication, is a security process in which the user provides two different authentication factors to verify themselves to better protect both the user's credentials and the resources the user can access.
- Two-factor authentication provides a higher level of assurance than authentication methods that depend on single-factor authentication (SFA), in which the user provides only one factor -- typically a password or passcode.
- **Statement 1 is incorrect:** **Two-factor authentication methods rely on users providing a password as well as a second factor, usually either a security token or a biometric factor like a fingerprint or facial scan.**
- **Statement 2 is correct:** Two-factor authentication **adds an additional layer of security to the authentication process by making it harder for attackers to gain access to a person's devices** or online accounts, because knowing the victim's password alone is not enough to pass the authentication check.
- Two-factor authentication has long been used to control access to sensitive systems and data, and online service providers are increasingly using 2FA to protect their users' credentials from being used by hackers who have stolen a password database or used phishing campaigns to obtain user passwords.

#### 50. Correct Option: (b)

**Explanation:**

**P null**

- A team of doctors, led by Shamee Shastry from the Blood Bank of Kasturba Medical

College (KMC) here, has identified a rare blood group called "pp" or "P null" phenotype.

- **Option (b) is correct:** A press release issued by the Manipal Academy of Higher Education (MAHE) here recently said that ABO and Rh D are the commonly typed blood group systems.

- However, there are more than 200 minor blood group antigens known besides A, B and Rh.
- A blood type is considered rare if fewer than one in 1,000 people have it. A person is said to have rare blood group when he lacks the high frequency antigen or multiple common antigens.

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