



An Institute for Civil Services

IAS PRELIMS 2020

**COMPLETE REVISION OF
CURRENT AFFAIRS
through
500 MCQs**

DAY: 45

**QUESTIONS
with ANSWER HINTS**

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QUESTIONS

1. Consider the following statements regarding PSLV-C47:

1. It has launched Cartosat-3 into Sun Synchronous orbit.
2. It is the 21st flight of PSLV in 'XL' configuration.
3. It is fitted with 6 solid strap-on motors.

Which of the above statements are correct?

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

2. Wooden Breast Syndrome was recently seen in news. Consider the following statements regarding it:

1. It is a metabolic disorder characterized by abnormal sugar accumulation in the breast muscle tissue.
2. An enzyme called lipoprotein lipase is behind the syndrome.

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. "Hera mission" launched by ESA is related to:

- (a) Solar Winds Analysis
- (b) Jupiter Probe
- (c) Asteroid Deflection
- (d) Space Observation

4. Consider the following statements regarding Vigyan Samagam:

1. It is a multi-project exhibition organized by DRDO in collaboration with ISRO.
2. It aims to celebrate India's participation as one of the core contributors in international collaborative mega-science projects.

3. The exhibition will be organised in four cities in India including Mumbai, Bengaluru, Kolkata, and Delhi.

Which of the above statements are correct?

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

5. Which of the following statement is / are correct with regard to FASTag?

1. FASTag is an electronic toll collection system in India.
2. FASTag is a device which works on Radio Frequency Identification (RFID) technology.
3. This device can be used for lifetime and transferred to another vehicle.

Select the correct answer using the code given below:

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

6. Consider the following statements regarding the recently discovered StrandHogg bug:

1. It is known to target Windows and Ubuntu operating systems.
2. It allows real-time malware applications to pose as genuine applications and access user data.
3. There is no effective detection method against StrandHogg on the devices.

Which of the above statements are correct?

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

7. Consider the followings statements regarding Secretagogen protein:

1. It helps in managing the Estrogen levels in the body.
2. It has the potential to cure neurodegenerative disorders like dementia and Alzheimers.
3. It is known to lower lipid accumulation in liver cells.

Which of the above statements are correct?

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

8. Consider the following statements regarding Bacteriophage:

1. It a type of virus that infects bacteria.
2. Lysis is the process by which bacteriophages assemble and burst out of bacterium to increase their spread.
3. Transduction is the process by which an infected bacterium produces virus components.

Which of the above statements are correct?

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

9. Consider the following statements regarding recently launched RISAT-2BR1 satellite of India:

1. It is radar imaging earth observation satellite.
2. It was placed in a low earth orbit by GSLV launch vehicle.
3. The launch also accompanied commercial satellites of USA, Japan, Italy and Israel.

Which of the above statements are correct?

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

10. Consider the following statements regarding the Indian Regional Navigation Satellite System:

1. Its primary area of service extends 15,000km from the boundary of India.
2. Standard Positioning Service provided by it is available to all users.
3. The satellite constellation has four satellites placed in geostationary orbit and three in geosynchronous orbit.

Which of the above statements is/are correct?

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

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ANSWER HINTS

Answer Key

Q. 1 (d)	Q. 3 (c)	Q. 5 (b)	Q. 7 (b)	Q. 9 (c)
Q. 2 (b)	Q. 4 (b)	Q. 6 (b)	Q. 8 (a)	Q. 10 (c)

1. Correct Option: (d)

Explanation:

- **All statements are correct**

Supplementary notes:

PSLV-C47

- India's Polar Satellite Launch Vehicle, **PSLV-C47 has launched Cartosat-3** and 13 commercial nanosatellites into Sun Synchronous orbit from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota.
- This is the first commercial order to put into orbit 13 American nanosatellites for NewSpace India, which was formed only in March 2019.
- **PSLV-C47 is the 21st flight of PSLV in 'XL' configuration (with 6 solid strap-on motors).**

2. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** It is a metabolic disorder characterized by abnormal **fat accumulation** in the breast muscle tissue.

Supplementary notes:

Wooden Breast Syndrome

- Researchers have recently found that the Wooden Breast Syndrome affects broiler chickens by making the meat hard and chewy.
- **It is a metabolic disorder characterized by abnormal fat accumulation in the breast muscle tissue.**
- It involves inflammation of the veins in the breast tissue and accumulation of lipid around the affected veins.

- It is followed by muscle cell death and replacement by fibrous and fatty tissue.
- **An enzyme called lipoprotein lipase is behind the syndrome** and it is crucial for fat metabolism.
- At the onset of wooden breast syndrome, lipoprotein lipase was higher in affected chickens, leading to more fat accumulating in the breast muscles.
- **This is an irregularity because breast muscle fibers in chicken typically rely on sugar molecules for fuel, not fat molecules.**
- It can render the birds unmarketable and cause losses for growers.

3. Correct Option: (c)

Explanation:

- **Option (c) is correct:** Hera mission launched by **ESA is related to Asteroid Deflection.**

Supplementary notes:

Hera mission

- **Scientists are studying asteroids and trying to find ways to deflect them from a collision course with Earth.**
- One such project is the Asteroid Impact and Deflection Assessment (AIDA), which includes **NASA's Double Asteroid Redirection Test (DART)** mission and the **European Space Agency's (ESA) Hera.**
- ESA and partner NASA will send a pair of spacecraft to a double-asteroid system called Didymos.
- NASA will first crash its DART probe into the smaller asteroid (Didymos). Hera will arrive later to map the impact crater and measure the asteroid's mass.

- The moon orbiting Didymos, called 'Didymoon' — almost the size of the Giza Pyramid in Egypt, measuring just 160 meters in diameter — will be the smallest asteroid ever explored.
- Hera will carry two CubeSats that can fly extremely close to the asteroid's surface before touching down.

4. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** It is organized by the Department of Atomic Energy.

Supplementary notes:

Vigyan Samagam

- It is a multi-project multi-venue exhibition organized by Department of Atomic Energy (DAE) 'to showcase India's collaborative contribution to cutting-edge mega-scale international scientific research.
- It is a first-of-its-kind ambitious public outreach programme in India for popularising science with contribution from the Department of Science & Technology (DST), along with the National Council of Science Museums (NCSM).
- It is conceived with the aim of providing a common interactive platform for industry, academia and institutions.
- **The exhibition celebrates India's participation as one of the core contributors in seven international collaborative mega-science projects, namely:**
 - European Organization for Nuclear Research (CERN)
 - International Thermonuclear Experimental Reactor (ITER)
 - Facility for Antiproton and Ion Research (FAIR)
 - India-based Neutrino Observatory (INO)
 - Laser Interferometer Gravitational-Wave Observatory (LIGO)
 - Thirty Meter Telescope (TMT) and
 - Square Kilometer Array (SKA)
- It was launched in **Mumbai** as the first venue in May 2019 and Vigyan Samagam will be **organised in four cities in India including Bengaluru, Kolkata, and Delhi.**

5. Correct option: (b)

Explanation:

- **Statement 3 is incorrect:** This device can be used for lifetime but **cannot** be transferred to another vehicle.

Supplementary notes:

FASTag

- **FASTag is an electronic toll collection system in India, operated by the National Highway Authority of India (NHAI)**
- **FASTag is a Radio Frequency Identification (RFID) technology passive tag used for making toll payments directly from the customers linked prepaid or savings/current account. It is affixed on the windscreen of the vehicle and enables the customer to drive through toll plazas, without stopping for any toll payments.**
- The toll fare is directly deducted from the linked account of the customer.
- **FASTag is also vehicle specific and once it is affixed to a vehicle, it cannot be transferred to another vehicle.**
- FASTag can be purchased from any of the NETC Member Banks.
- If a FASTag is linked to the prepaid account, then it needs to be recharged/ topped-up as per the usage of the customer. If adequate balance is not maintained by the customer, the FASTag gets blacklisted at the toll plaza.
- In such a scenario if the customer travels through a toll plaza without recharging then he won't be able to avail the NETC services and would be required to pay the toll fare through cash.
- National Payments Corporation of India (NPCI) has developed the National Electronic Toll Collection (NETC) program to meet the electronic tolling requirements of the Indian market. It offers an interoperable nationwide toll payment solution including clearing house services for settlement and dispute management. Interoperability, as it applies to National Electronic Toll Collection (NETC) system, encompasses a common set of processes, business rules and technical specifications which enable a customer to use their FASTag as payment mode on any of the toll plazas irrespective of who has acquired the toll plaza.
- FASTag offers the convenience of cashless payment along with benefits like - savings on



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fuel and time as the customer does not have to stop at the toll plaza.

6. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** It is known to target android operating systems.

Supplementary notes:

Strandhogg Bug

- **StrandHogg is a software bug that exploits Android control settings** called task Affinity and task Reparenting to allow apps including malicious ones to freely assume the identity of another task in the multitasking system.
- **It allows real-time malware applications to pose as genuine applications and access user data of all kind.**
- It can allow hackers to listen to the microphone, steal login credentials, take photos using the camera, read SMS and even access photos.
- It allows the malicious activity to hijack the target's task, so the next time the user opens the target app, the hijacked tasks will open up instead of the original tasks.
- During this interception, the malicious app will seek permission to access the device's camera, microphone, messages, GPS and storage.
- If the user grants these permissions, the malicious app gains access to these components.
- **Currently, there is no effective block or even detection method against StrandHogg on the device itself.**
- It was first reported by Norway-based cybersecurity firm Promon and later confirmed by their partner firm Lookout.
- The cybersecurity wing of Ministry of Home Affairs has issued a warning against this bug.

7. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** It helps in managing insulin levels and has nothing to do with Estrogen hormone.

Supplementary notes:

Secretagogin Protein

- The scientists at CSIR-Centre for Cellular and Molecular Biology (CCMB) have discovered a protein, Secretagogin or SCGN, that **helps**

manage insulin levels and has the potential to tackle diabetes.

- This protein binds to insulin and protects it from various stresses while increasing its stability.
- **SCGN-treated animals also have lower levels of harmful LDL-cholesterol and lower lipid accumulation in liver cells.**
- The injection of SCGN in obese diabetic mice clears excess insulin from circulation and reduces fat mass.
- **It is also known to tackle neurodegenerative disorders like dementia and Alzheimers** as diabetes and neurodegenerative disorders are often linked with each other, the protein is also found to be in lower quantities in the brains of Alzheimer's patients.

8. Correct Option: (a)

Explanation:

- **Statement 3 is incorrect:** Transduction is the process by which a virus transfers genetic material from one bacterium to another.

Supplementary notes:

Bacteriophage

- **A bacteriophage is a type of virus that infects bacteria.**
- All bacteriophages are composed of a nucleic acid molecule that is surrounded by a protein structure.
- A bacteriophage attaches itself to a susceptible bacterium and infects the host cell.
- Following infection, the bacteriophage hijacks the bacterium's cellular machinery to prevent it from producing bacterial components and instead forces the cell to produce viral components.
- **The new bacteriophages assemble and burst out of the bacterium in a process called lysis to increase their spread.**
- **Bacteriophages occasionally remove a portion of their host cells' bacterial DNA during the infection process and then transfer this DNA into the genome of new host cells. This process is known as transduction.**

9. Correct Option: (c)

Explanation:

- **Statement 2 is incorrect:** It was launched by PSLV-C48 launch vehicle into the low earth orbit.

Supplementary notes:

RISAT-2BR1

- The latest spy satellite, **RISAT-2BR1**, and nine foreign satellites were launched by ISRO in December 2019.
- **RISAT-2BR1 is radar imaging earth observation satellite weighing about 628 kg.**
- It was launched through the Polar Satellite Launch Vehicle (PSLV), which successfully completed its 50th mission.
- The launch vehicle, **PSLV-C48**, took off from the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh.
- **RISAT-2BR1 was injected into a low earth orbit of 576 km at an inclination of 37 degrees to the equator.**
- Apart from being used for military purposes, it has applications in fields such as agriculture and disaster management support.
- RISAT-2BR1 has a mission life of five years.
- The other satellites include six from the **United States**, and one each from **Japan, Italy and Israel**; their applications range from remote sensing to earth imaging.
- **These satellites were launched under commercial arrangement with New Space India Limited (NSIL), the commercial arm of Indian Space Research Organisation (ISRO).**

10. Correct Option: (c)

Explanation:

- **Statement 1 is incorrect:** Its primary area of service extends 1500 km from the boundary of India.

- **Statement 3 is incorrect:** The satellite constellation has 3 satellites placed in geostationary orbit and 4 in geosynchronous orbit.

Supplementary notes:

Indian Regional Navigation Satellite System (IRNSS): NavIC

- IRNSS is an independent regional navigation satellite system being developed by India.
- **It is designed to provide accurate position information service to users in India as well as the region extending up to 1500 km from its boundary, which is its primary service area.**
- **IRNSS will provide two types of services, namely, Standard Positioning Service (SPS) which is provided to all the users and Restricted Service (RS), which is an encrypted service provided only to the authorised users.**
- The IRNSS System is expected to provide a position accuracy of better than 20 m in the primary service area.
- The space segment consists of the IRNSS constellation of eight satellites, NavIC.
- **While the IRNSS-1A failed in the orbit, three satellites IRNSS-1C, IRNSS-1F and IRNSS-1G are located in suitable orbital slots in the geostationary orbit.**
- **The remaining four IRNSS-1B, IRNSS-1D, IRNSS-1E and IRNSS-1I are located in geosynchronous orbits with the required inclination and equatorial crossings in two different planes.**
- All the satellites of the constellation are configured identically. The satellites are configured with I-1K Bus to be compatible for launch onboard PSLV.

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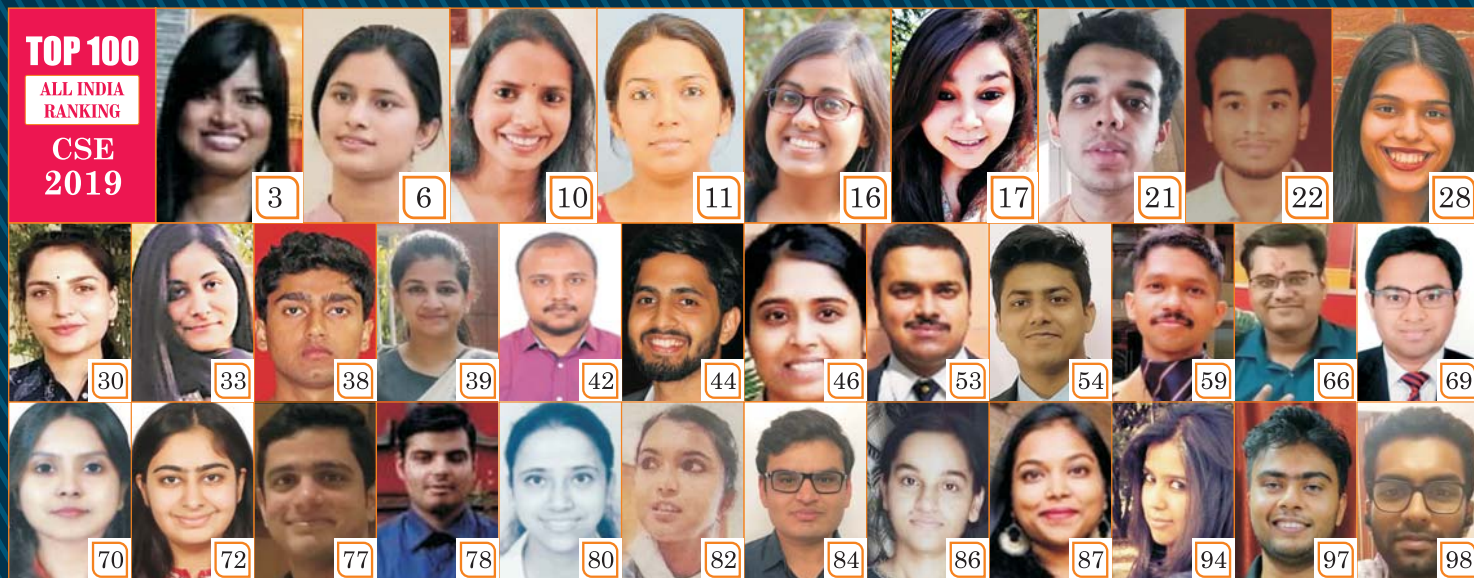
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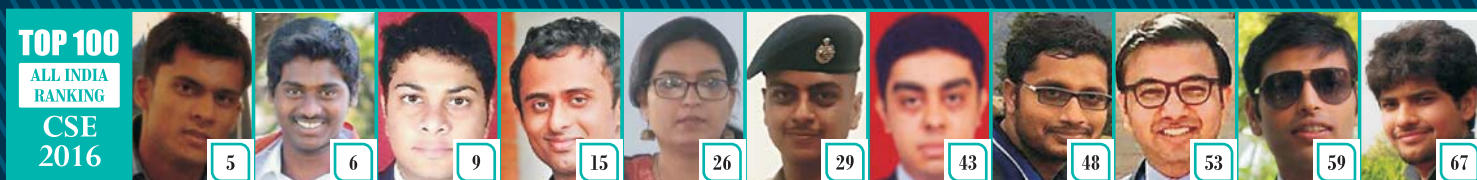
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