



An Institute for Civil Services

IAS  
2020

# PRELIMS 2020

## COMPLETE REVISION THROUGH TESTS

**BATCH**  
Starts

**7**  
JULY

### TOTAL 39 TESTS

14	10	15
FUNDAMENTAL TESTS	REVISION TESTS	MOCK TESTS (GS+CSAT)

3000<sup>+</sup> Topics Covered through  
20<sup>+</sup> Sources with Smart Solution

PROGRAMME FEE: ₹ 6,000 + GST

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# PROGRAMME HIGHLIGHTS

1. Our well designed test papers will focus on testing concepts as well as factual knowledge as per UPSC Pattern.

**2. Total 39 Tests:**

- a. Fundamental Tests - 14
- b. Revision Tests (including Current Affairs) - 9
- c. Economic Survey + Budget + IYB - 1
- d. Mock Tests - 15

**Sub-sectional Tests:** Under this each subject will be divided in sub-topics to bring more depth in preparation. These tests will be of **100 Questions** each.

**Revision Tests (RT) :** Under this each subject mentioned in the UPSC syllabus & **Current Affairs** will be catered and each test will consist of **100 Questions**.

**Mock Tests:** Mock tests will be conducted on UPSC pattern. ***Paper 1 will consist of 100 Qs. and Paper 2 will consist 80 Qs.***

3. 3-Layer Performance Analysis including Test Report, Detailed Analysis & integrated All India Ranking for Online & Classroom Aspirants.

# FAQ

## ► What is this program all about?

- **PRELIMS CRT 2020** is designed to achieve **MAXIMUM SCORE** in Prelims 2020 through **Speed and Accuracy** in solving MCQs which plays the most **VITAL** role in **2 hrs** of prelims examination.
- **PRELIMS CRT 2020** will help in covering Subjects from **NCERT to ADVANCE level** on **WEEKLY basis** which enhances the understanding of concepts and inter-connectivity between them.
- **Programme** will help in organising the preparation which is very important because due to late start and unorganised study aspirants lag behind and fail in Prelims exam by 2-3 marks.
- This program is designed to help students in **Quick Revision**; otherwise, they may be lost in the vast ocean of data and information overload.

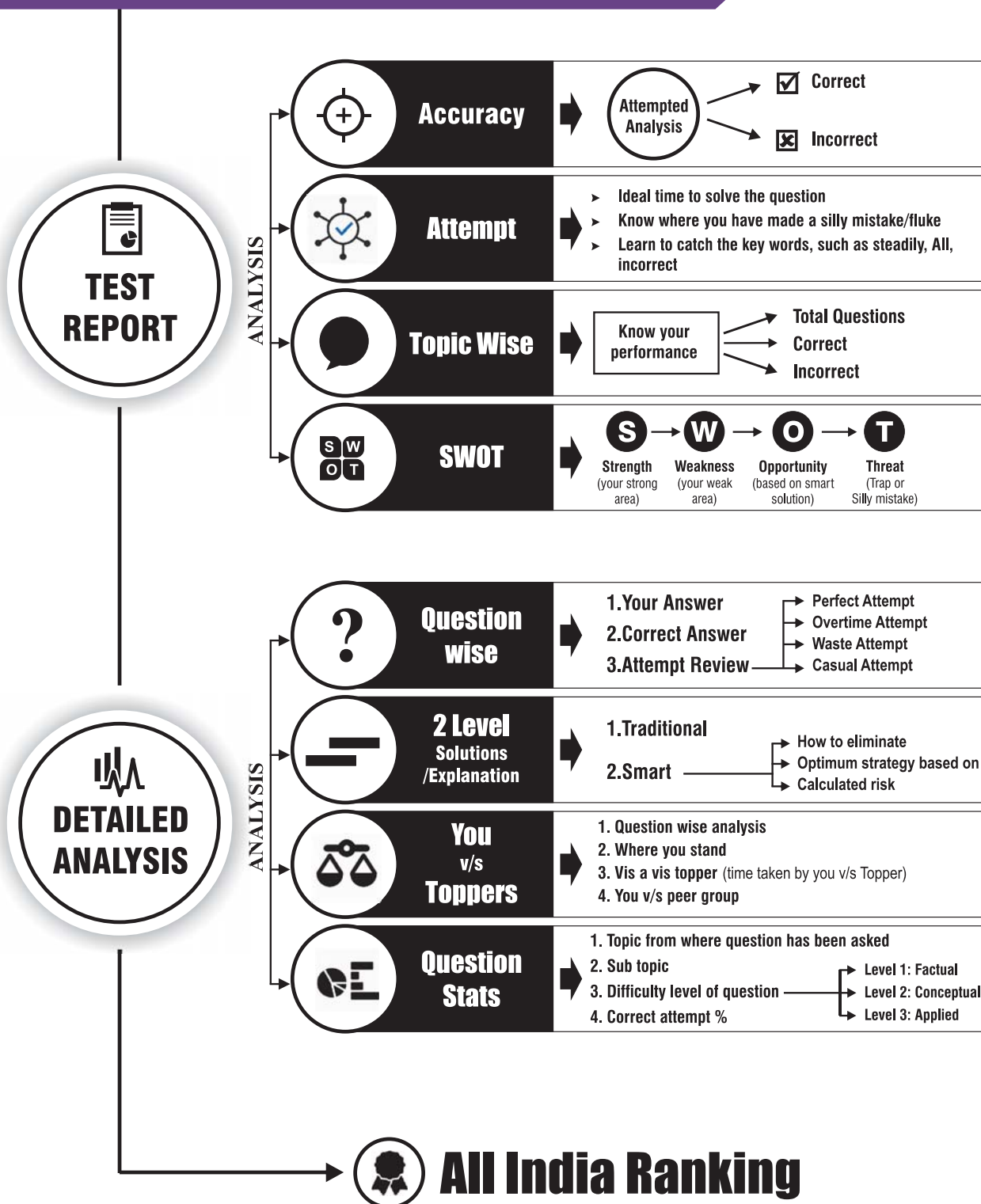
## ► How is it different from other test series?

- Self-Study and regular **REVISION** is the key to Holistic Preparation.
- **Our PRELIMS CRT 2020** will cover each subject in a holistic manner.
- Each subject will be covered rigorously.
- This will help students prepare each subject extensively as well as intensively.
- Programme will test one's knowledge and preparation for prelims rigorously.

## ► How to use this Programme?

- Through our **PRELIMS CRT** students will solve **3600+ MCQs** with detailed explanations.
- Detailed explanations will help in covering multiple dimensions of the topics in syllabus in stipulated time and full efficiency.
- **Explanation with Smart solution** will help in learning the art of elimination as it is not feasible for an aspirant to know everything under the sun. The art of eliminating options is the key to solve those questions where students lack sufficient information asked in the exam.

# TEST SCORE ANALYSIS



# TEST SCHEDULE

“SCHEDULE YOUR OWN TEST”

FUNDAMENTAL TESTS			
No	Date & Day	Subject	Topic Covered
1	7 July (Tuesday)	Fundamentals of Polity -1	Constitutional Development + Preamble + Union Territories + Citizenship + FR + DPSP + FD + Other Constitutional Provisions such as Emergency Provisions etc.
2	9 July (Thursday)	Fundamentals of Polity -2	Executive + Legislature + Judiciary
3	11 July (Saturday)	Fundamentals of History -1	Ancient + Medieval India History
4	12 July (Sunday)	Fundamentals of History -2	Modern India (1757 – 1947) History
5	14 July (Tuesday)	Fundamentals of History -3	Art & Culture of India (Visual Arts + Performing Arts + Religions + Languages + Literature + Institutions)
6	16 July (Thursday)	Fundamentals of Geography -1	World Geography (Geomorphology + Climatology + Oceanography + Biogeography)
7	18 July (Saturday)	Fundamentals of Geography -2	Indian Geography (Indian Physiography + Drainage System + Indian Climate + Soils in India + Natural Vegetation)

8	19 July (Sunday)	Fundamentals of Geography -3	Human & Economic Geography (Demography + Census + Economic Activities + Agriculture + Minerals + Energy Industry + Transport + Trade + Communication)
9	21 July (Tuesday)	Fundamentals of Environment -1	Environment and Ecology + Biodiversity
10	23 July (Thursday)	Fundamentals of Environment -2	Environmental Pollution and Management + Climate Change + Global Warming+ Environmental Governance
11	25 July (Saturday)	Fundamentals of Economy -1	Basic Concepts of National Income + Budgeting + Fiscal and Monetary Policy Agricultural and Industrial Policy
12	26 July (Sunday)	Fundamentals of Economy -2	External Sector + International Institutes + Money, Banking Financial Market and Other Provisions
13	28 July (Tuesday)	Fundamentals of Science -1	Biology + Everyday Science
14	30 July (Thursday)	Fundamentals of Science - 2	Science and Technology (IT + Telecom + IPR + Nanotech + Robotics + Nuclear tech + Biotechnology + Health + Defence + Space )
<b>REVISION TESTS</b>			
No	Date & Day	Subject	Topic Covered
15	1 August (Saturday)	Polity Revision Test- 1	Complete Polity + Current Affairs
16	2 August (Sunday)	Polity Revision Test- 2	Complete Polity + Current Affairs

17	4 August (Tuesday)	History Revision Test	Complete History + Art and Culture of India
18	6 August (Thursday)	Geography Revision Test	Complete Geography + Current Affairs
19	8 August (Saturday)	Environment Revision Test	Complete Environment + Current Affairs
20	9 August (Sunday)	Economy Revision Test	Complete Economy + Current Affairs
21	11 August (Tuesday)	Science & Technology Revision Test	Complete Science & Technology + Current Affairs
<b>MOCK TEST</b>			
No	Date & Day	Subject	Topic Covered
22	16 August (Sunday)	Mock – 1	PAPER 1 (GS)
23	18 August (Tuesday)	Mock – 2	PAPER 2 (CSAT)
24	20 August (Thursday)	Mock – 3	PAPER 1 (GS)
25	22 August (Saturday)	Mock – 4	PAPER 1 (GS)
26	23 August (Sunday)	Mock – 5	PAPER 2 (CSAT)
27	25 August (Tuesday)	Mock – 6	PAPER 1 (GS)

28	27 August (Thursday)	Mock – 7	PAPER 1 (GS)
29	29 August (Saturday)	Mock – 8	PAPER 2 (CSAT)
30	30 August (Sunday)	Mock – 9	PAPER 1 (GS)
31	1 September (Tuesday)	Mock – 10	PAPER 1 (GS)
32	3 September (Thursday)	Mock – 11	PAPER 2 (CSAT)
33	5 September (Saturday)	Mock – 12	PAPER 1 (GS)
34	6 September (Sunday)	CURRENT AFFAIRS	Economic Survey + Budget + IYB
35	8 September (Tuesday)	Mock – 13	PAPER 1 (GS)
36	10 September (Thursday)	Mock – 14	PAPER 1 (GS)
37	12 September (Saturday)	Mock – 15	PAPER 2 (CSAT)
38	13 September (Sunday)	CURRENT AFFAIRS	May + June, 2020
39	15 September (Tuesday)	CURRENT AFFAIRS	July + August, 2020



# LIST OF SOURCES

Subject	Sources
<b>Indian Polity &amp; Constitution</b>	<ul style="list-style-type: none"><li>◦ Indian Polity for Civil Services Examinations – M. Laxmikanth. (Polity)</li><li>◦ Introduction to the Constitution of India – D. D. Basu (Constitution)</li><li>◦ GSSCORE Target PT Material</li></ul>
<b>Indian History and Culture</b>	<ul style="list-style-type: none"><li>◦ India's Ancient Past – R.S. Sharma. (Ancient India – Text Book)</li><li>◦ History Of Medieval India – Satish Chandra. (Medieval India – Text Book)</li><li>◦ History Of Modern India – Bipan Chandra. (Modern India – Text Book)</li><li>◦ India's Struggle For Independence – Bipan Chandra. (Modern India – Read like a story)</li><li>◦ Indian Art and Culture – Nitin Singhanian. (Culture)</li><li>◦ Ancient and Medieval India – Poonam Dalal (Ancient and Medieval India)</li><li>◦ A Brief History of Modern India – Spectrum (Modern India)</li><li>◦ GSSCORE Target PT Material</li></ul>
<b>Geography</b>	<ul style="list-style-type: none"><li>◦ NCERT (Class 7<sup>th</sup> to 12<sup>th</sup>)</li><li>◦ Certificate Physical and human Geography by Goen Che Leong</li><li>◦ GSSCORE Target PT Material</li></ul>

<b>Environment</b>	<ul style="list-style-type: none"><li>◉ Class 12<sup>th</sup> Biology</li><li>◉ Environment &amp; Ecology: A Complete Guide by R. Rajgopalan</li><li>◉ IGNOU Environment &amp; Ecology</li><li>◉ GSSCORE Target PT Material</li></ul>
<b>Economics</b>	<ul style="list-style-type: none"><li>◉ NCERT (10<sup>th</sup>, 11<sup>th</sup> And 12<sup>th</sup>)</li><li>◉ Economic Survey of Last 3 years</li><li>◉ Indian Economy - Ramesh Singh</li><li>◉ GSSCORE Target PT Material</li></ul>
<b>Science &amp; Technology</b>	<p>NCERT (6<sup>th</sup> to 10<sup>th</sup>)</p> <ul style="list-style-type: none"><li>◉ GSSCORE Target PT Material</li></ul>
<b>Current Affairs</b>	<ul style="list-style-type: none"><li>◉ GSSCORE Target PT Material</li></ul>

# 3000+ TOPICS COVERED

- ▶ 3000+ Topics to be covered, through **Smart Solution**. It can be used as **REVISION NOTES**
- ▶ **SMART Solutions** will be provided so that you learn how to approach a question in the exam, even if you don't have the full knowledge of the topic given.

## EXAMPLE:

Let's see how smart solution can be effective through a practice question.

### Q. Which of the following are the characteristics of a stable ecosystem?

1. Dynamic Equilibrium
2. Maturity
3. High inertia
4. Low Species Diversity

Select the correct answer using the code given below:

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

### A. Correct Option: (a)

#### Explanation:

- **Statement 4 is incorrect:** These ecosystems have high (not low) species diversity.

#### **Supplementary notes :**

##### Ecosystem Stability

- ▶ Ecosystem stability refers to the capability of a natural ecosystem to apply self-regulating mechanism so as to return to a steady state after an outside disturbance. Ecosystem stability means there is a balance between production and consumption of each element in the ecosystem.

- ▶ The Principles of Ecosystem Stability are:
  - Ecosystems dispose of waste and replenish nutrients by recycling all elements.
  - Ecosystems use sunlight as their source of energy.
  - The size of a consumer population is maintained such that overgrazing and other forms of overuse do not occur.
  - Biodiversity is maintained.
- ▶ Some of the important characteristics of a stable ecosystem are:
- ▶ They are in dynamic equilibrium. It means there is a relative stability within a community of organism in terms of genetic, species and ecosystem.
- ▶ They are mature ecosystems. For example mixed tree size forest ecosystem characterised by a complex food web system in which a number of species are interdependent and interconnected .
- ▶ These ecosystems have high inertia. An inertia of an ecosystem refers to the delay or slowness in the response of an ecosystem to certain factors of change.
- ▶ These ecosystems have high (not low) species diversity.

### Smart Solution

- If a candidate knows that these ecosystems have high (not low) species diversity CODE (b), (c) and (d) can be straightaway rejected.

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**TEST: 1****FUNDAMENTAL OF POLITY - 1**

(CONSTITUTIONAL DEVELOPMENT + PREAMBLE + UNION TERRITORIES + CITIZENSHIP + FR + DPSP + FD + OTHER CONSTITUTIONAL PROVISIONS SUCH AS EMERGENCY PROVISIONS ETC.)

**1. Historical Evolution & Features**

- What is Constitution?
- Importance of Constitution
- Historical evolution of the Constitution
- Constituent Assembly
- Objectives of the Constitution
- Salient features of Indian Constitution
- Unitary features
- Federal features
- Parliamentary form of government
- Presidential form of government
- Parliamentary vs. Presidential system of government

**2. Preamble**

- Preamble
- Basic features
- Value premises of constitution
- Terminologies as:
  - Democratic
  - Sovereign
  - Socialist
  - Secular
  - Republic
  - Justice

- Equality
- Liberty
- Fraternity
- Integrity

**3. Fundamental Rights**

- Meaning and importance of Fundamental Rights
- Right to Equality
- Right to Freedom
- Right against Exploitation
- Right to Freedom of Religion
- Cultural and Educational Rights
- Right to Constitutional Remedies
- Difference between procedure established by law and due process of law
- Writs and their uses
- Restrictive limitations on fundamental rights

**4. DPSP**

- Basic features
- Economic and Social DPSP
- Gandhian DPSP
- Administrative DPSP
- DPSP related to international peace
- Implementation of DPSP

## 5. Fundamental Duties

- Features
- Link of Fundamental Rights and Fundamental Duties

## 6. Citizenship

- Basic constitutional features
- Methodology of getting citizenship
- Modes of Losing the Citizenship of India
- Concept of dual citizenship
- Citizenship provisions in J&K
- Special privileges enjoyed by citizens in India

## 7. Panchayats

- Brief history
- Provisions of 73<sup>rd</sup> AA
- Role and functions of different tiers
- Provisions of 74<sup>th</sup> AA
- Role and functions of different tiers
- Municipal Corporations
- Municipal Councils
- Nagar Panchayats
- The steps taken towards women's empowerment
- Role of State Election Commission
- Role of State Finance Commission
- XI<sup>th</sup> and XII<sup>th</sup> Schedules

## 8. The Scheduled and Tribal Areas

- 5<sup>th</sup> schedule areas
- 6<sup>th</sup> schedule areas

- Composition of autonomous councils
- Role and functions of councils
- Role of Governor with respect to tribal areas
- Tribal sub plan

## 9. Relations between the Union & the States

- Administrative relations
- Legislative relations
- Financial relations
- Misuse of emergency powers
- Issue of devolution of funds
- Interstate council
- Zonal council
- Cooperative federalism concept

## 10. Services

- All India Services
- State Services
- Central Services
- Union Public Service Commission (UPSC)
- State Public Service Commission (SPSC)
- Joint Public Service Commission (JPSC)

## 11. Tribunals

- Need of tribunals
- Salient features of tribunals
- Composition
- Procedure
- Powers and functions

- ▶ Different types of tribunals: some examples

## 12. Elections

- ▶ Importance of Universal Adult Franchise
- ▶ Constitutional provisions
- ▶ National and state party
- ▶ Types of elections
- ▶ Electoral reforms
- ▶ State funding
- ▶ Changes in Corporate Funding
- ▶ NOTA in Elections
- ▶ E- Postal Ballot

## 13. Special Provisions Relating To Certain Classes

- ▶ Reservation of seats for Scheduled Castes and Scheduled Tribes in centre and state legislatures
- ▶ Representation of the Anglo-Indian Community
- ▶ National Commission for Scheduled Castes and Scheduled Tribes

## 14. Official language provisions

- ▶ Official language of the Union
- ▶ Commission and Committee of

Parliament on official language

- ▶ Official language or languages of a State
- ▶ Official language for communication between one State and another or between a State and the Union
- ▶ Language of The Supreme Court, High Courts, etc.
- ▶ Special Officer for linguistic minorities

## 15. Emergency provisions

- ▶ National emergency
- ▶ State emergency
- ▶ Financial emergency
- ▶ Procedure of proclamation and removal of emergency
- ▶ Emergency and fundamental rights
- ▶ Impact of emergencies

## 16. Amendments

- ▶ Procedure of amendment
- ▶ Special majorities
- ▶ Important amendments
- ▶ Special provisions to different states
- ▶ Provisions related to NE states
- ▶ Provisions related to J&K

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**TEST: 2****FUNDAMENTAL OF POLITY - 2**  
(EXECUTIVE + LEGISLATURE + JUDICIARY)**1. Union and States**

- ▶ State Reorganization Commission (brief)
- ▶ Components of Indian territory
- ▶ Process of formation of new states
- ▶ Union territories
- ▶ Special provisions for states

**2. The President**

- ▶ Importance of President
- ▶ Qualification
- ▶ Election procedure
- ▶ Advantages and disadvantages of single transferable form of voting
- ▶ Presidents' Term of Office and emoluments
- ▶ Executive Powers
- ▶ Legislative Powers
- ▶ Emergency Powers
- ▶ Financial Powers
- ▶ Miscellaneous powers
- ▶ Judicial powers
- ▶ Presidents Impeachment
- ▶ President as nominal head

**3. Vice President**

- ▶ Office of the Vice-President
- ▶ Functions

**4. Prime Minister**

- ▶ Appointment of PM

- ▶ Functions of PM
- ▶ Role of PM with respect to
  - CoM
  - President
  - Lok Sabha
  - Political Party
  - Coalition Government

**5. Council of Ministers**

- ▶ Division of CoM
- ▶ Role of CoM
- ▶ Role of Cabinet
- ▶ Responsibilities of the Ministers

**6. Attorney General of India**

- ▶ Qualification
- ▶ Functions
- ▶ Powers with respect to parliament

**7. Parliament**

- ▶ Functions of Parliament
- ▶ Composition of Rajya Sabha
- ▶ Composition of Lok Sabha
- ▶ Qualification and disqualification of MPs
- ▶ Vacation of seats
- ▶ Sessions of parliament
- ▶ Law making procedure
- ▶ Officers of Parliament
- ▶ Parliament Proceedings
- ▶ Motions and resolutions in Parliament



- ▶ Powers and Privileges
- ▶ Budget making process
- ▶ Comparison of Lok Sabha and Rajya Sabha
- ▶ Types of majorities
- ▶ Special powers of RS

## 8. The Union Judiciary

- ▶ Integrated judicial system
- ▶ Supreme Court
  - Composition
  - Independence of Supreme Court
  - Jurisdiction of SC
  - Judicial Review

## 9. High Court

- ▶ Composition
- ▶ Terms and removal
- ▶ Jurisdiction
- ▶ Other powers
- ▶ Lower judiciary
  - Appointment
  - Powers

## 10. Comptroller and Auditor-General of India

- ▶ Appointment
- ▶ Functions
- ▶ Role of CAG in good governance

## 11. The Governor

- ▶ Appointment, term of office, qualification, etc
- ▶ Powers
- ▶ Discretionary powers
- ▶ Ordinance making power

## 12. Chief Minister

- ▶ Appointment
- ▶ Powers and responsibilities
- ▶ Relationship between the Governor and the Chief Minister
- ▶ Relationship between CoM and the Chief Minister

## 13. Council of Minister (CoM)

- ▶ Division of CoM
- ▶ Role of CoM
- ▶ Role of Cabinet
- ▶ Responsibilities of the Ministers

## 14. The Advocate-General for the State

- ▶ Appointment
- ▶ Functions

## 15. State legislature

- ▶ The composition of Vidhan Sabha and Vidhan Parishad
- ▶ Qualifications of the Members of Legislature
- ▶ Powers and Functions of State Legislature
- ▶ Relationship between both the Houses
- ▶ Officers of State Legislature
- ▶ Powers, Privileges and Immunities of State Legislatures and their Members
- ▶ Legislative procedure
- ▶ Governor's assent to Bills
- ▶ Procedure in Financial Matters/Budget

## 16. Miscellaneous

- ▶ President Election Procedure (Right to

- vote or not to vote)
- Concept of Office of Profit
- Types of CAG audit
- Reforms in Parliament functioning to increasing efficiency
- Dilemma of delimitation
- Significance of WHIP
- Declaration of assets of MP's
- NOTA in Rajya Sabha polls
- Demand for a hybrid electoral system
- Various types of electoral systems
- First past the post system
- Proportional representation
- Mixed systems also sometimes referred to as Hybrid system
- Motion of Thanks
- Privileges to MP
- Ordinance making powers
- Parliamentary committees
- National Court of Appeal
- Middle Income Group Legal Aid Scheme
- Public Interest Litigation
- Criminal Defamation
- Capital Punishment
- E-Courts
- Tele-law initiative
- Pro-bono legal services
- Prison reforms
- Law panel on Tribunals
- S.C Collegium proceedings in public domain
- Law Commission Report on United Nations Convention against Torture

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**TEST: 3****FUNDAMENTAL OF HISTORY - 1**  
(ANCIENT + MEDIEVAL INDIA)**ANCIENT INDIA****1. Pre Historic Cultures In India**

- Periodization of Indian Pre History
- Sources of Pre History
- Food Gathering Communities
- Food Producing Men
- Neolithic or the New Stone Age
- Iron Age
- Impact of Iron

**2. Pastoral and Farming Communities**

- Neolithic Phase
- Chalcolithic Phase
- Early Iron Phase
- Geographical Distribution and Characteristics

**3. Indus Valley Civilization**

- Major cities
- Town Planning
- Harappan Trade
- Agriculture
- Domestication of animals
- Crafts
- Religion
- Harappan Pottery
- Weights and Measures
- Script and Language

- Paintings
- Decline of Harappan Culture

**4. Vedic Society**

- Original Home of Aryans
- Features of Aryan Culture
- Vedic Texts
- Sources for Reconstructing Vedic Society and Culture
- Geography of the Rig Vedic Period and geography of the later Vedic Phases
- Economic Conditions
- Political Organisation and Evolution of Monarchy
- Social Organisation and Varna System
- Religion and Thought

**5. Pre Mauryan Period**

- Formation of states
- The Sixteen Mahajanapadas
- Republics
- Rise of urban centres
- Haryanka dynasty
- Shishunaga dynasty
- Nanda dynasty

**6. The Mauryan Empire**

- Chandragupta and Bindusara
- Megasthenes
- Asoka and His Successors
- Asoka's Inscriptions and Sites

- Asoka's Dhamma
- Mauryan Administration, Economy, Society and Art
- The Arthashastra

## 7. Post-Mauryan India (SC 200-AD 300)

- Society: Evolution of Jatis
- Sangam Texts and Society
- Satavahanas and Other Indigenous Dynasties
- Foreign Dynasties
- Commercial Contacts with the Outside World
- Schools of Art

## 8. Growth of Jainism and Buddhism

- Jainism
- Buddhism

## 9. Imperial Guptas

- Sources of Gupta Rule
- Political history of Guptas
- Fahien
- Gupta Administration
- Gupta Culture
- Urban centres in Gupta period
- Economic Conditions

## 10. Harshavardana

- Sources for Harsha's Period
- Early life of Harsha
- Harsha's Administration
- Important Officials of the empire
- Economy under Harsha

- Society
- Religion

## 11. The Southern Dynasties

- The Satavahanas (230 BC TO AD 225)
- The Pallavas (AD 330-796)
- The Chalukyas (AD 535-1190)
- The Pandyas of Madurai (AD 590-1323)
- The Chola Dynasty (AD 850-1310)
- Rashtrakutas (AD 753-973)

## MEDIEVAL INDIA

### 1. Central Asian Politics and the Advance of Babur towards India

- The Timurids
- The Timurid-Uzbek and Uzbek-Iran Conflict and Babur
- Babur's Advance towards India.

### 2. Struggle for Empire in North India (Afghans, Rajputs and Mughals)

- Struggle between Ibrahim Lodi and Babur
- The Battle of Panipat
- Babur's problems after the Battle of Panipat
- Struggle with Rana Sanga
- Problems of the Eastern Areas and the Afghans
- Babur's Contribution and Significance of his Advent into India

### 3. Struggle for Empire in North India

- ▶ Humayun and the Afghans
- ▶ Early Activities of Humayun, and the Tussle with Bahadur Shah
- ▶ The Gujarat Campaign
- ▶ The Bengal Campaign, and Struggle with Sher Khan

### 4. The Establishment of the North Indian Empire

- ▶ The Surs
- ▶ Sher Shah's Early Life
- ▶ Social and Political Background of Bihar and the Rise of Sher Shah to Power.
- ▶ The Sur Empire (1540-56)
- ▶ Contributions of Sher Shah

### 5. Consolidation and Expansion of the Empire - Akbar

- ▶ Conflict with the Afghans - Hemu
- ▶ Struggle with the Nobility: Bairam Khan's
- ▶ Regency; Revolt of Uzbek Nobles
- ▶ Early Expansion of the Empire (1560-76) - Malwa, Garh-Katanga, Rajasthan, Gujarat, Eastern India
- ▶ Relations with the Rajputs - Growth of a Composite Ruling Class
- ▶ Rebellions, and Further Expansion of the Empire in the North West

### 6. State and Government under Akbar

- ▶ Akbar's Concept of Suzerainty
- ▶ Structure of Government, Central and Provincial -the Vikalat, the Central Ministries, Provincial
- ▶ Government, District and Local Government
- ▶ The Working of Government - the Ruler, Land-Revenue System, the Dahsala System, the Mansabdari
- ▶ System and the Army

### 7. Akbar's Religious Views

- ▶ Relations with the Ulama and Social Reforms
- ▶ The Early Phase (1556-73)
- ▶ The Second Phase (1573-80) - the Ibadat Khana
- ▶ Debates - the Mahzar - Breach with Orthodox
- ▶ Ulama - Re-organisation of Madadd-i-Maash Grants
- ▶ Third or Final Phase - Din-i-Ilahi - State
- ▶ Policies and religious toleration

### 8. The Deccan and the Mughals (Upto 1657)

- ▶ The Deccani States upto 1595
- ▶ Mughal Advance towards the Deccan
- ▶ Mughal Conquest of Berar, Khandesh and Parts of Ahmadnagar
- ▶ Rise of Malik Ambar, and Frustration of Mughal Attempt at Consolidation (1601-27)
- ▶ Extinction of Ahmadnagar, Acceptance of Mughal

- ▶ Suzerainty by Bijapur and Golconda
- ▶ Shah Jahan and the Deccan (1636-57)
- ▶ Cultural Contribution of the Deccani States

## 9. Foreign Policy of the Mughals

- ▶ Akbar and the Uzbeks
- ▶ The Question of Qandahar and Relations with Iran
- ▶ Shah Jahan's Balkh Campaign
- ▶ Mughal - Persian Relations - the Last Phase

## 10. India in the First Half of the Seventeenth Century

- ▶ Jahangir's Accession - his Early Difficulties
- ▶ Territorial Consolidation and Expansion of the Empire - Mewar, East India and Kangra
- ▶ Jahangir as a Ruler
- ▶ NurJahan, and the NurJahan 'Junta'
- ▶ The Rebellions of Shah Jahan, and the coup de main of Mahabat Khan
- ▶ State and Religion in the First Half of the Seventeenth Century
- ▶ Shah Jahan - Consolidation and Expansion of the Empire
- ▶ Evolution of the Mughal Ruling Class and the Mansabdari System

## 11. Aurangzeb - Religious Policies, North India and the Rajputs

- ▶ War of Succession

- ▶ Religious Policy : First Phase (1658-79)
- ▶ Reforms and Puritanical Measures, Hindu
- ▶ Temples, Jizyah; Second Phase (1679-1707)
- ▶ Territorial Consolidation and Expansion of Empire - North India
- ▶ Popular Revolts - Jats, Satnamis, Afghans and Sikhs
- ▶ Breach with Marwar and Mewar

## 12. Climax and Crisis of the Mughal Empire the Marathas and the Deccan

- ▶ Rise of the Marathas - Early Career of Shivaji -
- ▶ Treaty of Purandar - the Agra Visit
- ▶ Shivaji's Swarajya - Administration and Achievements
- ▶ Aurangzeb and the Deccani States (1658-87)
- ▶ Marathas and the Deccan (1687-1707)
- ▶ Assessment of Aurangzeb and the Jagirdari Crisis

## 13. Society-Structure and Growth

- ▶ Rural Society
- ▶ Towns and Town Life
- ▶ Artisans and Master-Craftsmen
- ▶ Women
- ▶ Servants and Slaves
- ▶ Standard of Living
- ▶ The Ruling Classes - Nobility, Rural Gentry

- ▶ The Middle Strata
- ▶ The Commercial Classes

## 14. Economic Life-Patterns and Prospects

- ▶ Inland Trade
- ▶ Overseas Trade - Role of Foreign Trading
- ▶ Companies - Position of Indian Merchants Over-land Trade
- ▶ The Mughal State and Commerce
- ▶ Trend of India's Economy and Prospects during the First Half of the Eighteenth Century

## 15. Religion, Fine Arts, Science and Technology

- ▶ Religion- Hindu Religion, Sikh Religion, Islam
- ▶ Fine Arts - Architecture, Painting, Language and Literature, Music
- ▶ Science and Technology

## 16. Northern India in the First Half of the Eighteenth Century

- ▶ Bahadur Shah I, and the Beginning of the Struggle

- ▶ For Wizarat - Rajput Affairs - Marathas and the
- ▶ Deccan - Accentuation of the Party Struggle
- ▶ Struggle for 'New' Wizarat: Zulfiqar Khan and Jahandar Shah (1712-13)
- ▶ The Saiyid Brothers' Struggle for 'New' Wizarat
- ▶ The Saiyid 'New' Wizarat
- ▶ The Wizarat of M. Amin Khan and Nizam-ul-Mulk
- ▶ Rise of Regional States, Beginning of Foreign Invasions of India (1725-48)

## 17. The Maratha Bid for Supremacy

- ▶ The Marathas and their Policy of Expansion
- ▶ The Marathas and Nizam-ul-Mulk
- ▶ The Maratha Advance into Gujarat and Malwa
- ▶ The Maratha Advance into Doab and Punjab:
- ▶ First Phase (1741-52); Second Phase (1752-61);
- ▶ Third Battle of Panipat

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**TEST: 4****FUNDAMENTAL OF HISTORY- 2**  
(MODERN INDIA ( 1757 – 1947))**MODERN INDIA****1. The Advent of Europeans In India**

- ▶ The Portuguese in India
  - De Almeida
  - Albuquerque
  - Causes of failure of Portuguese empire in India
- ▶ The Dutch in India
- ▶ The Danes in India
- ▶ The English
- ▶ The French
- ▶ Anglo-French Rivalry
  - First Carnatic War
  - Rise of the Hyderabad State
  - The Second Carnatic War
  - The Third Carnatic War
  - Causes of English Success

**2. The English in Bengal from 1757 TO 1772**

- ▶ Black-hole Tragedy
- ▶ Battle of Plassey
- ▶ Mir Jafar
- ▶ Deposition of Mir Jafar
- ▶ Mir Kasim

**3. Impact of British****Administration**

- ▶ Industrialization—Ruin of Artisans and Handicrafts men
- ▶ Impoverishment of Peasantry
- ▶ Emergence of New Land Relations, Ruin of Old Zamindars
- ▶ Stagnation and Deterioration of Agriculture
- ▶ Commercialization of Indian Agriculture
- ▶ Development of Modern Industry
- ▶ Rise of Indian Bourgeoisie
- ▶ Economic Drain
- ▶ Famine and Poverty
- ▶ Nationalist Critique of Colonial Economy
- ▶ Abolition of the Dual System
- ▶ Zamindari system
- ▶ Ryotwari system
- ▶ Mahalwari system

**4. The Revolt of 1857**

- ▶ Economic Causes
- ▶ Political Causes
- ▶ Administrative Causes
- ▶ Socio -Religious Causes
- ▶ Influence of Outside Events
- ▶ Discontent Among Sepoy's
- ▶ Beginning and Spread
- ▶ Leaders of the Revolt
- ▶ Suppression of Revolt



- Causes of Failure of Revolt
- Hindu-Muslim Unity Factor
- Nature of the Revolt
- Consequences

## 5. Administrative Changes After 1857

- Administration - Central, Provincial, Local
- Changes in the Army
- Public Services
- Princely States
- Administrative Policies
- Foreign Policy

## 6. Social reforms in India

- Raja Ram Mohan Roy
- Swami Vivekananda
- Swami Dayananda Saraswati
- Ishwar Chandra Vidyasagar
- Jyotiba Phule
- Dr. Bhimrao Ramji Ambedkar
- Henry Vivian Derozio
- Debendranath Tagore
- Keshab Chandra Sen
- Sri Ramakrishna Paramhansa
- Mahadev Govind Ranade
- Theosophical Society And Annie Besant
- Syed Ahmad Khan
- Parsi Religious Reform Association
- Baba Dayal Das
- Pandita Ramabai
- Sarojini Naidu

## 7. Development of Indian Press

- Early Regulations on Press
- Struggle by Early Nationalists to Secure Press Freedom
- Vernacular Press Act, 1878
- During and After the First World War
- During the Second World War
- After Independence

## 8. Development of Education

- Charter Act of 1813
- Orientalist-Anglicism Controversy
- Efforts of Thomson
- Wood's Des-patch (1854)
- Hunter Education Commission (1882-83)
- Indian Universities Act, 1904
- Government Resolution on Education Policy—1913
- Saddler University Commission (1917-19)
- Education Under Dyarchy
- Hartog Committee (1929)
- Wardha Scheme of Basic Education (1937)
- Sergeant Plan of Education
- Kothari Education Commission (1964-66)
- Development of Vernacular Education
- Development of Technical Education
- Evaluation of British Policy on Education

## 9. Struggle by the Masses

- Tribal Movements
  - Bhil Uprising
  - Kol Uprising

- Santhal Rebellion
- Jaintia and Garo Rebellion
- Rampa Rebellion
- Munda Rebellion
- Khonda Dora Uprisings
- Tana Bhagat Movement
- ▶ Peasant Movements
  - Champaran Satyagraha
  - Kheda Peasant Struggle
  - Bardoli Movement
  - Moplah Rebellion
  - Tebhaga Movement
  - Telangana Movement

## 10. Terrorist and Revolutionary Movements

- ▶ Terrorist Movements
- ▶ The Revolutionary Movement
- ▶ Reasons for Failure

## 11. The Early Phase of the Freedom Struggle (1900–1915)

- ▶ Partition of Bengal (1905)
- ▶ Swadeshi Movement (1905)
- ▶ Origin of the Muslim League (1906)
- ▶ Resolution of Swaraj (1906)
- ▶ Surat Session: Split in Congress (1907)
- ▶ Morley-Minto Reforms (1909)

## 12. Middle Phase of the Freedom Struggle (1915–1930)

- ▶ World War I-Reforms and Agitation

- ▶ Home Rule Movement (1915–1916)
- ▶ Lucknow Pact (1916)
- ▶ August Declaration of 1917
- ▶ Beginning of the Gandhian Era
- ▶ The Government of India Act (1919)
- ▶ Rowlatt Act (1919)
- ▶ Jallianwala Bagh Massacre (13 April 1919)
- ▶ Khilafat Movement (1920)
- ▶ Non-Cooperation Movement (1920–1922)
- ▶ Chauri-Chaura Incident (1922)
- ▶ Trade Union Movement
- ▶ Communist Movement in India
- ▶ Swaraj Party (1922)
- ▶ Muddiman Committee (1924)
- ▶ Simon Commission (1927)
- ▶ Butler Committee (1927)
- ▶ Delhi Muslim Proposal (1927)
- ▶ Nehru Report (1928)
- ▶ All Parties Muslim Conference (1929)
- ▶ Jinnah's Fourteen Points (1929)
- ▶ Lahore Session (1929)
- ▶ Allahabad Address (1930)

## 13. Closer to Freedom (1930–1947)

- ▶ Civil Disobedience Movement (1930)
- ▶ The First Round Table Conference (1930)
- ▶ Gandhi-Irwin Pact
- ▶ Second Round-Table Conference (1931)
- ▶ Civil Disobedience Movement (Second-Phase)
- ▶ Third Round Table Conference (1932)
- ▶ The Communal Award (1932)

- Poona Pact (1932)
- The Government of India Act (1935)
- World War II and the Indian Political Situation
- Resignation of Congress Ministers (1939)
- Poona Resolution and Conditional Support to Britain (1941)
- August Offer of 1940
- The Individual Civil Disobedience
- Two-Nation Theory
- Demand for Pakistan (1942)
- Cripps Mission (March 1942)
- Quit India Movement (1942–1945)
- The CR Formula (1944)
- Gandhi-Jinnah Talks (1944)
- Desai-Liaquat Pact (1945)
- Wavell Plan and Simla Conference (1945)
- Provincial and General Elections of 1945
- Cabinet Mission Plan (1946)
- Azad Hind Fauj (Indian National Army)
- Direct Action Campaign (1946)
- Interim-Government (1946)
- Mountbatten Plan (1947)
- India Wins Freedom
- Indian Independence Act (1947)
- Partition of India
- Lord Arthur Wellesley (1798-1805)
- Lord George Barlow (1805-1807)
- Lord Minto-I (1807-1813)
- Francis Rawdon Hastings (1813-1823): (Marques of Hastings)
- Lord Amherst (1823-28)
- Lord William Bentinck (1828-1835)
- Sir Charles Metcalfe (1835-1836)
- Lord Auckland (1836-1842)
- Lord Ellenborough (1842-1844)
- Lord Hardinge-I (1844-1848)
- Lord Dalhousie (1848-1856 great imperialist and colonist)
- Lord Canning (1856-1857 and 1858-1862)
- Lord Elgin-I (1862-1863)
- Lord Lawrence (1862-1869)
- Lord Mayo (1869-1872)
- Lord North Brook (1872-1876)
- Lord Lytton (1876-1880)
- Lord Rippon (1880-1884)
- Lord Dufferin (1884-1888)
- Lord Lansdowne (1888-1894)
- Lord Elgin-II (1894-1905)
- Lord Curzon (1899-1905)
- Lord Minto-II (1905-1910)
- Lord Hardinge-11 (1910-1916)
- Lord Chelmsford (1916-1921)
- Lord Reading (1921-1926)
- Lord Irwin (1926-1931)
- Lord Willingdon (1931-1936)
- Lord Linlithgow (1936-1944)
- Lord Wavell (1944-1947)
- Lord Mountbatten (1947-1948)

#### 14. Governor Generals During British India

- Robert Clive (1754-1767)
- Lord Warren Hastings (1773-1785)
- Lord Cornwallis (1786-1793)
- Sir John Shore (1793-1798)

**TEST: 5****FUNDAMENTAL OF HISTORY- 3**  
**ART & CULTURE OF INDIA**  
**(VISUAL ART + PERFORMING ARTS + RELIGIONS +**  
**LANGUAGES + LITERATURE + INSTITUTIONS)****VISUAL ARTS****1. Sculptures**

- Sculptures of Harappan Civilisation
- Sculptures of Mauryan Age
- Post-Mauryan Period
- Jain Sculptures
- Buddhist Sculpture
- Gupta Sculpture
- Medieval School of Sculpture
- Modern Indian Sculpture

**2. Architecture in Ancient India**

- Harappan Period
- Mauryan Architecture
- Post-Mauryan Period
- Gupta Period
- Temples of Khajuraho
- Temples of Odisha
- Temples of Gwalior
- Temples of Gujarat
- Temples of Rajasthan
- Temples of Bengal
- Temples of Assam
- Temples of Himachal Pradesh
- Temples of Jammu and Kashmir
- Pallava Period
- Chola Period

- Pandya Temples
- Vijaynagar Period
- Nayaka Temples
- Temples of Kerala
- Vesara Style
- Hoysala Style
- Rashtrakuta Period
- Schools of Temple Architecture
  - ◉ Nagara Style
  - ◉ Hoysala Style
  - ◉ Dravidian Style
  - ◉ Vesara Style

**3. Indo-Islamic Architecture**

- Imperial Style (Delhi Sultanat)
- Provincial Style
- Mughal Style
- Sikh Style of Architecture
- Rajput Architecture
- Salient features

**4. Modern Architecture**

- European Influence
- Indo-Saracenic Architecture
- Post-Independence Period

**5. Indian Paintings**

- Cave Paintings
- Tradition of Mural Paintings in India

- ▶ Tradition of Miniature Paintings in India
- ▶ Paintings in the Deccan
- ▶ Rajput School of Painting
- ▶ Pahari School of Painting
- ▶ Miniature Painting in South India
- ▶ Regional Paintings
- ▶ Modern Paintings
- ▶ Contemporary Paintings

## 6. Pottery Tradition in India

- ▶ Ochre: Coloured Pottery (OCP)
- ▶ Black and Red Ware (BRW)
- ▶ Painted Grey Ware (PGW)
- ▶ Northern Black Polished Ware (NBPW)
- ▶ Glazed and Unglazed Pottery

## PERFORMING ARTS

### 1. Music in India

- ▶ Classical Indian Music
  - Hindustani Music
  - Carnatic Music
- ▶ Main Pillars of Indian Music
- ▶ Forms of Indian Music
- ▶ Musical Instruments
- ▶ Institutions Related to Music
- ▶ Folk Music in India

### 2. Dances in India

- ▶ Concept of Dance in India
- ▶ Concept of Ashta Nayika
- ▶ Eight Classical Dance Forms in India
- ▶ Folk Dances
- ▶ Modern Dances

### 3. Sports in India

- ▶ Various Type of Sports
- ▶ Genesis of Martial Arts
- ▶ Forms of Traditional Martial Arts
- ▶ Animal Sports

### 4. Indian Theatre

- ▶ History of theater in India
- ▶ Classical Sanskrit Theatre
- ▶ Traditional Theatre
- ▶ Regional Theatre
- ▶ Modern Theatre
- ▶ Renaissance of Indian Theatre
- ▶ Cinema in India
  - History of Indian Cinema
  - Classification of Indian Cinema Film

### 5. Indian Puppetry

- ▶ String Puppets
- ▶ Shadow Puppets
- ▶ Rod Puppets
- ▶ Glove puppets
- ▶ Modern Puppetry
- ▶ Tribal Puppetry

## RELIGION, LANGUAGE AND LITERATURE IN INDIA

### 1. Religions in-India

- ▶ Pre-Vedic Religion
- ▶ Hinduism
- ▶ Buddhism
- ▶ Jainism
- ▶ Sikhism

- Islam
- Christianity
- Zoroastrianism
- Judaism
- Philosophy in India

## 2. Bhakti and Sufi Movements

- Bhakti Movement
- Saints of Bhakti Movement
- Sufism

## 3. Languages and Literature in India

- Sanskrit Literature
- Pali Literature
- Prakrit Literature
- Tamil Literature
- Telugu Literature
- Malayalam Literature
- Kannada Literature
- Odia Literature
- Assamese Literature

- Bengali Literature
- Gujarati Literature
- Rajasthani Literature
- Punjabi Literature
- Marathi Literature
- Hindi Literature
- Persian Literature
- Urdu Literature
- Contribution of Language and Literature of foreign languages

## MISCELLANEOUS

- UNESCO's List of Cultural Heritage in India
- Protection and Promotion of Indian Culture and Heritage: Legal Provisions
- Schemes and Awards
- Personalities Related to Culture
- Places of Cultural Interest
- The Calendar & the Eras
- Science and Technology in Ancient India

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**TEST: 6****FUNDAMENTAL OF GEOGRAPHY- 1****(GEOMORPHOLOGY + CLIMATOLOGY +  
OCEANOGRAPHY + BIOGEOGRAPHY)****GEOMORPHOLOGY****1. The origin of the Earth**

- ▶ Early Theories
- ▶ Modern Theories
- ▶ Star Formation
- ▶ Formation of Planets
- ▶ Solar System

**2. The Evolution of the Earth**

- ▶ Layered Structure
- ▶ Evolution of Lithosphere
- ▶ Evolution of Atmosphere
- ▶ Evolution of Hydrosphere

**3. Geological History of the Earth****4. Earth**

- ▶ Latitude and Longitude including important Parallels and Meridians
- ▶ Motions of the Earth - Rotation, Revolution and their effects
- ▶ Inclination of the Earth's Axis and its effects
- ▶ Local and Standard Time and the International Date Line, Calendar
- ▶ Eclipses - Solar, Lunar
- ▶ Earth's Magnetic Field

**5. Geological Time Scale**

- ▶ Origin of Life

**6. Interior of the Earth**

- ▶ Sources of Information
  - Direct
  - Indirect - Earthquake Waves, Volcanoes
- ▶ Crust
- ▶ Mantle
- ▶ Core

**7. Geology**

- ▶ Minerals
- ▶ Major Elements of the Earth's Crust
  - Minerals – Feldspar, Quartz, Pyroxene Amphibole, Mica, Olivine
  - Physical Characteristics – Crystal Form, Cleavage Fracture, Lusture, Color, Streak
  - Transparency, Structure, Hardness, Specific Gravity
  - Metallic minerals – precious Ferrous, Non Ferrous
  - Non-metallic Minerals – Sulphur, Phosphates, Cement
- ▶ Rocks (Aggregate of Minerals)
  - Petrology
  - Rocks & landforms
  - Rocks & Soils
- ▶ 3 Family of Rocks



- Igneous
- Sedimentary
- Metamorphic
- Rock Cycle

## 8. Earthquakes

- Waves: P,S, Body, Surface
- Shadow Zone
- Types of Earthquakes
- Effects
- Frequency
- Locating an Epicentre

## 9. Volcanes

- Types
  - Shield
  - Composite
  - Caldera
  - Flood Basalt
  - Mid Ocean Ridge
- Landforms (intrusive)
  - Batholiths
  - Lacoliths
  - Lapoliths
  - Phacoliths
  - Sills
  - Dykes

## 10. Geomorphic Processes

- Earth's Surface
  - Exogenic Forces
  - Endogenic Forces
  - Gradation, Degradation & Agradation
- Geomorphic Process
- Endogenic Process

- Diastrophism
  - Orogenic
  - Epierogenic
  - Earthquakes
  - Plate movements
- Volcanism
  - Exogenic Forces
  - Denudation Processes
- Weathering
- Mass movements

## 11. Distribution of Continents & Oceans

- Theories
- Continental Drift Theory
  - Alfred Wegner 1912
  - Pangea, Panthalasa
  - Laurasia, Gondwanaland
- Evidence in support of Continental Drift Theory
  - Jigsaw Fit
  - Rocks of Same age across oceans
  - Tillite
  - Placer Deposits
  - Distribution of Fossils
- Isostasy - Sea Floor Spreading
- Forces of Drifting
  - Pole Fleeing Force
  - Tidal Force
- Post Drift Studies
  - Convectional Current Theory
  - Mapping of the Ocean Floor
- Continents – plate Tectonics
- Lithospheric Plates
  - Major Plate
  - Minor Plates



- ▶ Plate Boundaries
  - Divergent
  - Convergent
  - Transform
- ▶ Rates of Plate Movements
- ▶ Force of plate movements
- ▶ Indian Plate

## 12. Landforms and their Evolution

- ▶ Causes
  - Geomorphic Processes
  - Geomorphic Agents
  - Erosional or Destructional
  - Depositional or Constructional
- ▶ Agents and their Impacts
  - Wind, Running Water, Ground Water, Glaciers, Waves & Currents
- ▶ Winds
  - One of the Two dominant agents in Hot deserts
  - Cause – Deflation Abrasion Impact
  - Erosional landforms
    - Pediments and Pediplains
    - Playas
    - Deflation Hollows and Caves
    - Mushroom, Table & Pedestal Rocks
  - Depositional Landforms
    - Barchans
    - Seif
    - Parabolic
    - Transverse
    - Longitudinal
- ▶ Running Water
  - Erosional Landforms
    - Valleys
    - Rills
    - Gullies
    - Valleys – V Shape, Gorge (Hard Rocks), Canyon (Sedimentary)
    - Potholes & Plunge pools
    - Incised or entrenched meanders
    - River Terraces – paired & unpaired
  - Depositional Landforms
    - Alluvial Fans
    - Delta
    - Flood Plains, Natural Levees, Point Bars
    - Meanders, Slip off bank, Under cut bank
      - Oxbow lake
      - Braided Channels
- ▶ Ground Water (Karst Topography)
  - Permeable Rocks
    - Percolation
    - Bedding Plains
  - Limestone and Dolomite Regions
    - Balkans, Adjacent to Adriatic regions
  - Erosional Landforms
    - Pools - Swallow Hole, Valley Sinks (Uvalas), Sinkholes, Collapse sinks (Dolines), Lapies, Ridges, Limestone Pavements
    - Caves – Altering bed of Rocks (Shale sandstone quartzit, Caves and Tunnels)
  - Depositional landforms
    - Stalactites
    - Stalagmites
    - Pillar Columns
- ▶ Glaciers

- Erosional Landforms
  - Cirque of Tarn Lakes
  - Hors and Serrated Regions – Arete
  - Glacial Valleys / Troughs – Fjords
- Depositional Landforms
  - Glacial Till
  - Moraines
  - Eskers
  - Outwash Planes
  - Drumlins
- ▶ Waves and Currents
  - High Rocky Coasts & Low Sedimentary Coasts
  - Erosional Landforms
    - Cliffs
    - Terraces
    - Caves
    - Stacks
  - Depositional Landforms
    - Beaches and Dunes
    - Bars, Barriers, Spits
- ▶ Weathering
  - Weather over Earth Materials
    - Factors
    - Geological
    - Climatic
    - Topographic
    - Vegetative
- ▶ Major Processes
  - Chemical
  - Physical or Mechanical
  - Biological
- ▶ Chemical – Forces Chemical Action
  - Solution
  - Carbonation
- Hydration
- Oxidation & Reduction
- ▶ Physical Forces Gravitational, Expansion, Water Pressure
  - Unloading & Expansion
  - Temperature changes and Expansion
  - Freezing, Thawing, & Frost Wedging
  - Salt Weathering
- ▶ Biological Weathering
  - Burrowing
  - Wedging
  - Plant Roots
- ▶ Effects of Weathering
  - Exfoliation (Flakin) – Exfoliation Domes
- ▶ Significance of Weathering
  - Soil Formation
  - Biomes and Biodiversity
  - Leaching / Enrichment
- ▶ Mass Movements
  - Activating causes
  - Forms of movement – Heave, Flow, Slide

### 13. Landforms across the world

- ▶ Rivers and lakes
- ▶ Mountain and Peaks
- ▶ Plateaus

## CLIMATOLOGY

- ▶ Composition
- ▶ Gases
- ▶ Water Vapour
- ▶ Dust Particles

- ▶ Structure
  - Exosphere
  - Thermosphere
  - Mesosphere
  - Stratosphere
  - Troposphere
- ▶ Altitude vs Temperature
- ▶ Insolation
- ▶ Solar Radiation Heat Balance Temperature
- ▶ Aphelion and Perihelion
- ▶ Variability of Insolation at the surface of the Earth
  - Day Season Year
  - Rotation on Axis , Angle of Inclination of sun rays , Length of the day
  - Transparency of Atmosphere, configuration of land in terms of its aspect.
- ▶ Heat Balance
- ▶ Heating and cooling of atmosphere
  - Conduction
  - Convection
  - Advection
- ▶ Terrestrial Radiation
- ▶ Heat Budget of the Planet Earth
- ▶ Macro Budget
  - Albedo
  - Shortwave Radiation
  - Long wave Earth Radiation
- ▶ Variation in the net Heat Budget at the Earth's Surface
- ▶ Temperature
- ▶ Factors controlling Temp distribution
- ▶ Distribution of Temp Month of January-July
- ▶ Range of Temp Month of January-July
- ▶ Inversion of Temperature
- ▶ Atmospheric Circulation and Weather Systems
- ▶ Atmospheric Pressure
- ▶ Vertical variation of pressure
- ▶ Horizontal distribution of pressure
- ▶ World Distribution of Sea Level Pressure
- ▶ Factors affecting the velocity and direction of the Wind
- ▶ Pressure Gradient Force
- ▶ Frictional Force
- ▶ Coriolis Force
- ▶ Pressure and Wind ( Cyclonic & Anticyclone Circulation)
- ▶ General Circulation of the Atmosphere – Pattern of Planetary Winds
- ▶ Latitudinal Variation of Atmospheric Heating
- ▶ Emergence of Pressure Belts
- ▶ Migration of Belts Following apparent Path of Sun
- ▶ Distribution of continents & Oceans
- ▶ Rotation of the Earth
- ▶ Circulation
- ▶ Simplified Global Circulation – Hadley Cell , Ferrel Cell
- ▶ Seasonal Wind
- ▶ Local Wind
- ▶ Land and Sea Breezes
- ▶ Mountain and Valley Winds
- ▶ Air mass & fronts
- ▶ Extra Tropical Cyclone
- ▶ Thunderstorms
- ▶ Tornadoes
- ▶ Water in the Atmosphere
- ▶ Water Vapour
  - Humidity – Absolute and Relative

- Saturation – Dew Point
- Evaporation and Condensation
- ▶ Precipitation
  - Rainfall, Snowfall, Sleet Hail, Hailstones
  - Dew
  - Frost
  - Fog & Mist
- ▶ Clouds
  - Types – Cirrus, Cumulus, Stratus, Nimbus
  - High – Cirrus, Cirrostratus, Cirrocumulus
  - Middle – Altostratus, Altopumulus
  - Low – Stratocumulus, Nimbostratus
  - Vertical Development – Cumulus and Cumulonimbus
- ▶ Types of Rainfall
  - Conventional
  - Orographic
  - Cyclonic
- ▶ World Distribution of Rainfall
- ▶ World Climate
  - The Hot, Wet Equatorial Climate
  - The Tropical Monsoon and Tropical Marine Climates
  - The Savanna or Sudan Climate
  - The Hot Desert and Mid-Latitude Desert Climates
  - The Warm Temperate Western Margin (Mediterranean) Climate
  - The Temperate Continental (SteppClimate)
  - The Warm Temperate Eastern Margin (China TypClimate)
  - The Cool Temperate Western Margin (British TypClimate)

- The Cool Temperate Continental (Siberian) Climate
- The Cool Temperate Eastern Margin (Lauren-tian) Climate
- The Arctic or Polar Climate

## OCEANOGRAPHY

- ▶ Water on the Surface of the Earth
- ▶ Hydrological Cycle
  - Component
  - Processes
- ▶ Oceans
- ▶ Relief of the Ocean floor
- ▶ Divisions of the ocean floor
  - Continental Shelf
  - Continental Slope
  - Deep sea plain
  - Oceanic deep and Trenches
- ▶ **Minor relief features**
  - Mid oceanic ridges
  - Seamount
  - Submarine canyons
  - Guyouts
  - Atoll
- ▶ **Temperature of the Ocean Water**
  - Vertical
  - Spatial
  - Factors affecting Temperature distribution
  - Latitude
  - Unequal distribution of land & Water
  - Prevailing wind
  - Ocean Currents
- ▶ Horizontal & Vertical Distribution
- ▶ Salinity of the Ocean Water
  - Factors affecting salinity

- ▶ Evaporation and precipitation
- ▶ Fresh water flow from rivers
- ▶ Ocean currents
  - Horizontal distribution of salinity
  - Vertical Distribution of salinity
- ▶ Density of Ocean Waters
- ▶ Movements of ocean Water
- ▶ Factors influencing Movement
  - Temperature
  - Salinity
  - Density
- ▶ Motion – Horizontal and Vertical Currents
- ▶ Waves
  - Motion of waves and water molecules
  - Characteristics of wave
  - Crest and Trough
  - Height
  - Amplitude
  - Period
  - Length
  - Speed
  - Frequency
- ▶ Tides
  - Relation between Gravitational Forces and Tides
  - Tidal currents
  - Types of Tides
- ▶ Based on Frequency – Semi Diurnal , Diurnal, mixed
- ▶ Based on SME position – spring and Neap Tides
  - Importance of Tides
- ▶ Ocean Currents
  - Primary Force that initiates the movement
- ▶ Heating of solar energy

- ▶ Wind
- ▶ Gravity
- ▶ Coriolis force
  - Secondary force that influence the currents to flow
  - Types of ocean currents:
  - Surface currents & Deep water currents based on Depth
  - Cold and Warm Currents based on Temperature
- ▶ Major Ocean currents of the World
- ▶ Effects of Ocean Currents

## Water Resources

- ▶ Underground water resource
- ▶ Surface water resources
- ▶ Inland water resources: Utilization of inland water resources
- ▶ Oceanic Water Resources
- ▶ Utilization of oceans by man
- ▶ Water consumption patterns
- ▶ Water Pollution
- ▶ Conservation of Water Resources
- ▶ Techniques of Water Conservation

## BIOGEOGRAPHY

### Soil

- ▶ Soil Characteristics
- ▶ Factors Responsible for Soil Formation
- ▶ Stages of Soil Formation
- ▶ Soil Forming Processes
- ▶ Soil Profiles and Horizons
- ▶ Soil Classification
- ▶ Soil Erosion and Conservation

### Land

- Land-use
- Land capability classification
- Causes of Land Degradation
- Impact of Land Degradation
- Steps taken by GOI
- Sustainable Land Management

**Vegetation Resources**

- Types of natural vegetation
- Forests
- Significance of forests
  - Economic significance, Ecological significance
  - Cultural significance
- Factors of forest development
- Extent of forest cover
- Classification of forests
  - Grasslands
  - Desert vegetation
  - Tundra Vegetation

- Economic utilization of forests
- Deforestation
  - Deforestation in tropical forests
  - Deforestation in temperate forests
  - Rate and extent of deforestation
  - Causes and factors of deforestation: Immediate causes of deforestation
  - Indirect deforestation
  - Underlying causes of deforestation
- Conservation of forests
  - Forest conservation strategies
  - Reforestation
  - Monoculture plantation
  - Afforestation
- Types of forestry
  - Social forestry
  - Agro-forestry

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**TEST: 7****FUNDAMENTAL OF GEOGRAPHY - 2****INDIAN GEOGRAPHY**

**(INDIAN PHYSIOGRAPHY + DRAINAGE SYSTEM  
+ INDIAN CLIMATE + SOILS IN INDIA + NATURAL  
VEGETATION)**

**1. Physiography of India**

- Geological Region
- Location
- Physiographic Sub-Units
  - Himalayans
  - Northern Plains
  - Peninsular Plateau
  - Thar Desert
  - Coastal Plain
  - The Islands
- Mountain System
  - Classification of The Himalayan System
  - Regional Division of the Himalaya
- The Peninsular - Peninsular Plateaus
- Plains - Northern Plains of India
- Lakes
- Deserts
- Indian Coasts and Islands

**2. Drainage System**

- Classification of Drainage
- Himalayan Drainage
- Indus river system
- Indus drainage system
- Ganga River System
- Brahmaputra river system
- Peninsular River System
- East flowing Rivers
- Mains Rivers and their tributaries
- Famous cities and river banks

**3. CLIMATE**

- Factors influencing the climate of India
- Monsoon
- Mechanism of the Monsoon
  - Classical Theory
  - Modern theory
  - Air mass theory
  - Jet stream theory
- El-Nino and La-Nina
- Seasonal rhythm
- Koppen's Climatic classification
- Indian Droughts and Floods

**4. Soils in India**

- Soil Acidity
- Soil textures
- Minerals of Soil
- Soil Erosion
- Soil Conservation

**5. Natural Vegetation**

- Vegetation
- Mangroves
- Distribution of Forest Area
- Forest Problems in India



## TEST: 8

### FUNDAMENTAL OF GEOGRAPHY - 3

#### HUMAN & ECONOMIC GEOGRAPHY

(DEMOGRAPHY + CENSUS + ECONOMIC ACTIVITIES  
+ AGRICULTURE + MINERALS + ENERGY INDUSTRY +  
TRANSPORT + TRADE + COMMUNICATION)

## 1. Demography

- Concept of human resources
- Population distribution
- Physical factors
- Socio-cultural factors
- Demographic factors
- World population distribution
  - Ecumene
  - Non-ecumene
- Continent-wise distribution of population
- Density of population
- Pattern of population density
- Population increase (growth) in the world
- Causes of rapid increase in population
- Future projections
- Determinants of population growth
- Natural increase
- Characteristics of population
  - Age composition
  - Population pyramids
  - Sex composition
  - Literacy
- Theories of population growth
  - Malthusian theory
  - Marxian theory
  - Demographic Transition Theory
- Optimum population
- Over-population
- Under-population
- Population problems
  - Population problems of developing countries
  - Population problems of developed countries
- Population Policies: of China, of India.
- Various types of rural settlements
- Relationship between house types with relief, climate and building materials

## 2. Urbanization

- Basic Feature and Pattern's of India's Urbanization
- Issues of Urbanization in India
  - Rural Urban Migration
  - Emergence of Slums
  - Urban Transport
  - Waste Disposal
  - Water Supply, Drainage and Sanitation
  - Electronic Waste
  - Urban Poverty
  - Real Estate (Regulation & Development) Bill
- Way Forward to Tackle Issues Related to Urbanization
  - Inclusive Cities/Smart cities



- Recent government programmes: AMRUT, HRIDAY Scheme
- Migration
- Displacement
- Importance of the Rehabilitation Policy
- Urban settlements: types
- Morphology of urban settlements
- Migration: Push factors and pull factors
- Emigration during colonial, post-independent and post-liberalisation period
- Functional classification of cities
- Difference between boundaries and frontiers, their classification
- Rural urban fringe characteristics, advantages, problems
- National urbanisation policy
- Factors affecting rural settlements, their types and patterns

### 3. Census

- Literacy
- Sex Ratio
- Family Planning
- Old Age
- Age Structure
- Density
- Population Growth
- Census Terminologies

### 4. Mineral resource

- Types of minerals
- Metallic minerals
- Non-metallic mineral
- Distribution of minerals and mining regions

- Distribution, production and international trade of Metallic minerals: Ferrous metals: Iron ore
- Ferro-alloys and non-ferrous
- Manganese
- Chromium
- Nickel
- Tungsten
- Antimony
- Copper
- Bauxite and Aluminium
- Zinc; Lead
- Tin
- Gold
- Silver
- Platinum
- Mineral chemicals
  - Mica
  - Potash
  - Phosphate
  - Nitrates
  - Sulphur
- Conservation of mineral resources

### 5. Energy resources

- Classification of energy
- Production of conventional energy
- General trends of energy production and consumption
- Reserves and sources of energy
- Coal
  - Nature and origin of coal
  - Constituents and kinds of coal
  - Coal fields and coal production
  - By products of coal
  - Conservation of Coal
- Petroleum

- Nature and properties of petroleum
- Origin and recovery
- Exploration
- Petroleum refining
- Petroleum reserves
- Producing areas
- Consumption of petroleum
- International trade
- OPEC and its role in oil trade
- ▶ Natural gas: Reserves and Production
- ▶ Hydro-electricity
  - Advantages of hydro-electricity
  - Ideal conditions for generation of hydro-electricity
  - Distribution of potential hydro-power
  - Hydro-electric power generation in India
- ▶ Atomic (nuclear) energy
  - Atomic: source minerals: Uranium
  - World distribution of Uranium
  - Production of Uranium
  - Thorium
  - Production of Atomic (Nuclear) Energy
  - Nuclear Energy
- ▶ Alternative (non-conventional) sources of energy
  - Solar energy
  - Wind energy
  - Geothermal power
  - Tidal energy
  - Wave energy
  - Biomass energy
- ▶ Iron and Steel Industry
  - Location of iron and steel industry
  - Early localization
  - Development of iron manufacture
  - Distribution of iron and steel industry
  - Global steel production
  - International trade
  - Growth potential of the steel industry
- ▶ Textile Industry
  - Cotton Textile Industry: Location of the industry
  - Recent trends in localization
  - Distribution and production of cotton textiles
  - Woollen textile industry: Location of the industry
  - Silk textile industry: Raw silk manufacture
  - Synthetic (artificial) silk industry: Distribution of man-made fibre and fabrics.
- ▶ Engineering Industries
  - Machine tools and machines: Areas of production
  - Industrial machinery: Textile machinery
  - Other industrial machinery
  - Agricultural machinery
- ▶ Manufacturing of transport equipment
  - Automobile industry
  - Railway car and locomotive industry
  - Shipbuilding
  - Aircrafts Industry
- ▶ Chemical Industry & Fertilizer
  - Classes of chemicals: Branches of

## 6. Industry

- ▶ Industrial development

- chemical industry
  - Heavy chemical industry
  - Production of acids and alkalies
  - Rise of chemical industry
  - Fertilizer industry: Nitrogen fertilizers
  - Phosphate fertilizers
  - Potash fertilizers
- ▶ Explosives
- ▶ Glass industry: Production of glass
- ▶ Agro-industries
  - Synthetic rubber industry
  - Pulp and paper industry: Essential conditions for pulp production
  - Production of paper and paper board
  - Newsprint
- ▶ Cement industry
  - Distribution of cement industry
  - Recent trends: Main global competitors
- ▶ Petroleum refining industry: Localization
  - Site selection of petroleum refineries
  - History of oil refineries
  - World pattern of oil refining
  - Petroleum products
- ▶ Industrial Regions
  - Characteristics of industrial regions
  - Delimitation of an industrial region
  - Principal industrial regions of the world
- ▶ Industrial regions of Anglo America—USA, Canada, Western Europe and Central Britain, Germany, Belgium, Netherlands, France, Italy, Eastern Europe, Poland, Former USSR

- ▶ Eastern Asia—Japan, China, the 'Dragons', India, High tech patterns.

## 7. Transport

- ▶ Importance and development of transport
- ▶ Means of transport
- ▶ Transport costs and economic distance
- ▶ Operating costs in transport
- ▶ Relative importance of means of transport: Railways, Roads, Pipeline, Oceans, Air transport
- ▶ Profits and freight rates
- ▶ Government's transport policy
- ▶ Transport patterns in the world: Oceanic transport
- ▶ Ocean transport routes
- ▶ Inland waterways
- ▶ Main regions of inland waterways
- ▶ Railways: Factors affecting the railroads
- ▶ Distribution of railroads in the world
- ▶ Air transport: Factors influencing air transport
- ▶ Air transport in various continents
- ▶ Pipeline transport
  - Petroleum (oil) pipelines
  - Gas pipelines

## 8. Basic terms related to Agriculture

- ▶ Performance of the agriculture sector
- ▶ Types of farming in India
- ▶ Dry zone farming
- ▶ Organic farming
- ▶ Cropping seasons in India

- Cropping Pattern in India
- Agriculture regionalization
- Infrastructure factors: Seeds; Fertilizers; Irrigation
- Land use pattern in India
- Institutional Factors as land reform
- Horticulture sector in India
- Agricultural revolutions
- Agricultural labours
- Price Policy for Agriculture
- Agricultural marketing
- Agricultural Insurance
- Agricultural Census
- Major schemes in agricultural sector
- National Policy for farmers
- Impact of climate change on agriculture
- What is sustainable agriculture?
- Use of IT in agriculture
- Agriculture Issues and Challenges

## 9. Productivity of Crops and conditions for growth

- Wheat
  - Conditions of growth
  - Varieties
  - Types of cultivation
  - Production pattern
  - International trade
- Rice
  - Conditions of growth
  - Varieties
  - Methods of cultivation
  - Production pattern
  - International trade
- Maize (Corn)
  - Conditions of growth
- Production pattern
- International trade
- Barley
  - Conditions of growth
  - Production pattern
  - International trade
- Oats
- Rye
- Beverages
- Tea
  - Condition of growth
  - Production pattern
  - International trade
- Coffee
  - Types of coffee
  - Conditions of growth
  - Production pattern
  - International trade
- Cocoa
  - Conditions of growth
  - Production pattern
  - International trade
- Tobacco
  - Conditions of growth
  - Production pattern
  - International trade
- Fibre Crops
- Cotton
  - Varieties of cotton
  - Conditions of growth
  - Production pattern
  - International trade
- Jute
  - Conditions of growth
  - Production pattern
  - International trade
  - Substitutes of Jute: Flax, Hemp

- ▶ Raw Silk
  - ◉ Production pattern
  - ◉ States
- ▶ Natural Rubber
  - ◉ Other sources of rubber
  - ◉ Plantations in South-East Asia
  - ◉ Production pattern
- ▶ Sugarcane
  - ◉ Conditions of growth
  - ◉ Production pattern
  - ◉ International trade
- ◉ Sugarbeet—Conditions of growth
- ◉ Production pattern
- ◉ Sugar industry
- ◉ Sugar consumption
- ◉ International trade.

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## TEST: 9

## FUNDAMENTAL OF ENVIRONMENT - 1 (ENVIRONMENT + ECOLOGY + BIODIVERSITY)

### 1. Ecology

- Types of Ecology
- Ecological Hierarchy
- Scope of Ecology
- Habitat & Ecological Niche
- Deep vs Shallow Ecology
- Ecological Principles
- Ecological Community
- Structure and Characteristics of a Community
- Stratification
- Ecotones
- Ecological Dominance
- Seasonal and Diurnal Fluctuation
- Periodicity
- Interdependence
- Ecological Succession
- Types and Process of Succession
- Climax Community
- Range of Tolerance , Maximum Range
- Difference between Ecology, Environment and Ecosystem

### 2. Ecosystem and its dynamics

- Ecosystem Definitions
- Functions and Properties of Ecosystem
- The Structure/Components of Ecosystem
  - Abiotic Components
  - Biotic Components
- Ecosystem Dynamics
  - Flow of Energy in Ecosystem

- Trophic Levels
- Food Chain
- Types & Significance of Food Chain
- Food Web
- Models for Energy Flow
- Ecological Productivity
- Ecological Pyramid
- Biomagnifications
- Biological Control
- Organic Farming

### 3. Biogeochemical Cycles

- Parts of a Bio Geochemical Cycle
- Types of Biogeochemical Cycle
- Carbon Cycle
- Nitrogen Cycle
- Phosphorus Cycle
- Sulphur Cycle

### 4. Biomes: Forest, Grassland, Mountain, and Desert Ecosystems

- Biome
- Grasslands
- Tundra
- Deserts
- Thar desert
- Mountain biome

### 5. Aquatic Life Zones: Ocean, Rivers, Lakes, and Wetlands

- Aquatic ecosystems
- Basic facts about the ocean
- Importance of the ocean
- Zones of the ocean
- Marine life
- Coral reefs
- Coral reefs in India
- Conserving coral reefs
- Mangroves
- Mangroves in India
- Freshwater in India
- Importance of lakes
- National Lake Conservation Plan
- Wetlands and their importance
- Ramsar Convention
- Ramsar Sites
- Montreux Record
- Extent and distribution of wetlands in India
- Conserving the wetlands of India

## 6. Biodiversity Basics

- Biodiversity
- Important kinds of biodiversity
- Degree of diversity in an ecosystem
- Endemic species
- Keystone species
- Indicator species
- Invasive species
- Allopatric and sympatric speciation
- Bioinformatics
- Biodiversity distribution
- Uses and values of biodiversity
- State of global biodiversity
- Threats to biodiversity
- Biodiversity Hotspots
- Eco-regions

- Role of traditional knowledge in biodiversity
- Biopiracy
- Extinction of species
- Mass extinction
- IUCN's classification scheme
- IUCN Red-List of Threatened Species
- Level of biodiversity in India
- Biogeographic classification of India

## 7. Biodiversity Conservation

- Ex-situ and in-situ conservation
- Seed banks
- Zoos in biodiversity conservation
- Botanical gardens
- Protected areas
- State of protected areas in the world
- UNESCO Man and the Biosphere Program (MAB)
- Characteristics of biosphere reserves
- International agreements for biodiversity conservation
- Convention on Biological Diversity
- Cartagena Protocol
- Nagoya Protocol
- Aichi Biodiversity Targets
- Important Coastal and Marine Biodiversity Areas of India
- Important Bird Areas (IBAs) of India
- Global Tiger Initiative
- Project Tiger
- Project Elephant
- Indian Rhino Vision
- Recovery Programme for Critically Endangered Species
- Use of indigenous knowledge for conserving biodiversity
- Seed village



**TEST: 10****FUNDAMENTAL OF ENVIRONMENT - 2**  
(ENVIRONMENTAL POLLUTION AND MANAGEMENT  
+ CLIMATE CHANGE + GLOBAL WARMING +  
ENVIRONMENTAL GOVERNANCE)**1. Effect of Human Activities on Environment**

- Effect of Modern Agriculture on Environment
- Effect of Housing on Environment
- Effect of Power Generation on Environment
- Effect of River Valley Projects (Water Resource Projects) on Environment
- Effect of Mining on Environment
- Effect of Transportation Activities on Environment
- Effect of Tourism on Environment

**2. Water Resource degradation**

- Water Cycle (Hydrological Cycle)
- Availability and Quality Aspects (groundwater depletion)
- Water-borne and Water-induced Diseases
- Fluoride Problem in Drinking Water
- Arsenic Problem in Drinking Water

**3. Minerals & Environmental Degradation**

- Mining and Environment
- Sensitivity of Select Ecosystems to Mining
- Impact of Mining
- Indirect Impact of Mining

- International Laws on Mining
- Main Act or Statue to regulate the impact of Indian Mining Sector
- Sustainable Mining

**4. Deforestation**

- Causes of Deforestation
- Implications of Deforestation for Climate Change
- Consequences of Deforestation on the Wildlife of India
- Impact of Deforestation on Indian Monsoon
- Impact of Deforestation on People
- Deforestation Leads to Water and Soil Resources Loss and Flooding
- Economical Impacts
- Strategies for Reducing Deforestation
- Government Programmes for Conservation of Forests
- Legislations for Conservation of Forests using People Participation
- Steps for Improving People Participation in Forest Resource Management
- Use of Local Traditional Methods

**5. Waste Management**

- Solid Waste
- Hazardous Waste
- e-Waste



- ▶ Bio Medical Waste
- ▶ Plastic Waste
- ▶ Methods for Waste Management
- ▶ Effects of Poor Waste Disposal
- ▶ Landfill

## 6. Sustainable Development

- ▶ Principles of sustainability
- ▶ Measurement of Sustainability or Sustainable Ethics or Equitable Utilisation of Natural Resource
- ▶ Sustainable Lifestyle (Role of an individual in sustainable, development)
- ▶ Challenges to Sustainable Development
- ▶ International Efforts to Achieve Sustainability

## 7. Environmental Pollution

- ▶ Air Pollution
  - Sources of Air Pollution
  - Effects of Air Pollution
  - Classification of Air Pollutant
  - Control Measures of Air Pollution
  - Air Pollution Disasters
  - Long Range Transport of Gaseous Air Pollutants
  - National Ambient Air Quality Standards
- ▶ Water Pollution
  - Sources of Water Pollution
  - Types of Water Pollutants
  - Effects of Water Pollution
  - Water Quality Standards
  - Control of Water Pollution
- ▶ Thermal Pollution

- Sources of Thermal Pollution
- Effects of Thermal Pollution
- Control of Thermal Pollution
- ▶ Soil Pollution or Land Degradation
  - Sources of Soil Pollution
  - Effects of Soil Pollution
  - Control Measures
- ▶ Noise Pollution
- ▶ Air-borne Diseases
- ▶ Toxic Substances: Toxicant, Toxicity and Toxicology
- ▶ Factors affecting toxicity
- ▶ Carcinogens

## 8. Solid Waste Management

- ▶ Sources of Solid Waste
- ▶ Effect of Solid Waste
- ▶ Control Measures of Solid Waste
- ▶ Solid Waste Management Rules
- ▶ Hazardous Waste Management (HWM)

## 9. Coastal ecosystem management

- ▶ Mangroves
  - Salient features of Mangroves
  - Importance of Mangroves
  - Mangroves in India
  - Mangroves under threats
  - Legal and Regulatory Approaches for Protection
- ▶ Estuaries
  - Importance of estuaries
  - Threats to estuaries
- ▶ Coral Reefs
  - Geographical Conditions Required
  - Uses of coral reefs

- Conservation of coral reef
- Steps for Coastal Ecosystem Management

## 10. Environmental Impact Assessment

- Government Body which Executes EIA
- Environmental Effects Analysed under EIA
- Process of EIA
- EIA Ruling 1984

## 11. Environmental Laws

- Environmental Laws
- Provisions in the Indian Constitution towards Environmental Protection
- Salient Features of Air (Prevention and Control of Pollution) Act, 1981\*
- Salient Features of Water (Prevention and Control of Pollution) Act, 1974
- Salient features of Forest Conservation Act, 1980
- Salient Features of Wildlife Protection Act, 1972
- Salient Features of Environment (Protection) Act, 1986
- Role of Government in Environmental Protection

## 12. Environment related Institutions and Organizations

- Pollution Control Boards
- National Green Tribunal
- Forest Survey of India
- National Board for Wildlife

## 13. Schemes

- National Mission for Clean Ganga
- India Signs Global Environment Facility Grant
- Wood in Good Campaign
- Boat Lab to Study Brahmaputra
- Wildlife Action Plan
- SECURE Himalayas
- Strategic Plan for Human-Elephant Conflict
- Save the Sparrow
- Land Degradation Neutrality
- Biodiversity Heritage Site - Ameenpur Lake
- Energy Conservation Building Code
- Special Protection Force for Rhinos
- Regional Project on Stubble Burning
- Blue Flag Pilot Project
- National Afforestation Program
- National River Conservation Plan
- National Mission for Clean Ganga
- National Air Quality Index (AQI)
- National Action Programme to Combat Desertification
- Bharat Stage Norms

## 14. International Environmental Governance

- UNEP
- UNDP
- Centre for Biological Diversity
- WWF for Nature
- IUCN - Red List
- Birdlife International
- International Conventions / Protocols & their Objectives

**15. Urbanization and climate**

- Pollution in metros and climate change
- Real estate boom and environment degradation
- Urban Heat Island
- Polythene bags and pollution
- Methane generation from waste

**16. Impact of agriculture on climate**

- Agriculture increases Carbon Dioxide Emissions
- Monoculture practice impacts biodiversity

- Pollution due to use of chemical fertilizers
- Soil-related effects
- Fertilizer's Effect on the Environment
- Impact of livestock on environment
- Impact of use of Pesticides on environment
- Impact of GM crop on environment
- Emission of Methane from agricultural practices
- Sustainable Agriculture Techniques

**17. Global Warming & Health**

- Health impacts of global warming
- Mosquito-borne diseases
- Ozone depletion and human health

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**TEST: 11****FUNDAMENTAL OF ECONOMY - 1**  
(BASIC CONCEPTS OF NATIONAL INCOME, MONEY  
BANKING, AND OTHER PROVISIONS + FINANCIAL  
MARKET)**1. Basic concepts in Economy**

- ▶ Basic concepts of Macroeconomics
- ▶ Economy Sectors
- ▶ Classification of Economy
- ▶ Basic Characteristics of Indian Economy

**2. National Income**

- ▶ Concepts of National Income
- ▶ Calculation of National Income
- ▶ Latest India's National Income Estimates
- ▶ New Series of National Statistics (Base Year 2011-12)
- ▶ Annual Estimates of Expenditures on GDP
- ▶ Per Capita Income
- ▶ Purchasing Power Parity
- ▶ Lorenz Curve
- ▶ Philip's Curve
- ▶ Gini Coefficient

**3. Money**

- ▶ Indian currency system
- ▶ Broad and Narrow Money
- ▶ Money multiplier
- ▶ Digital Money
- ▶ New Monetary Aggregates
- ▶ Monetary Policy
- ▶ Monetary Policy Committee

**4. Inflation**

- ▶ Types of Inflation
- ▶ Other variants of inflation
- ▶ Effects of inflation
- ▶ Measures taken by RBI
- ▶ RBI and Government Monetary Policy Committee

**5. Banking**

- ▶ Development of Banking System in India
- ▶ Reserve Bank of India (RBI)
- ▶ Public Sector Banks
- ▶ Other Important Banks and Financial Institutions
- ▶ Cash Reserve Ratio (CRR)
- ▶ Statutory Liquidity Ratio (SLR)
- ▶ Repo Rate
- ▶ Reserve Repo Rate
- ▶ Call Rates
- ▶ Marginal Standing Facility (MSF)
- ▶ Bank Rate
- ▶ Banking Sector Reforms in India
- ▶ Payment banks
- ▶ Small Banks
- ▶ New banking licence
- ▶ White Label ATM
- ▶ Unified Payments Interface
- ▶ Bank Board Bureau

- ▶ Marginal Cost of Funds Based Lending Rate (MCLR)
- ▶ Priority Sector Lending Certificates
- ▶ Concept of Micro ATM

## 6. Important committees

- ▶ Ratan P Watal Committee on Digital Payment
- ▶ Committee for Market Infrastructure Institution (MII)
- ▶ D. P. J. Nayak Committee
- ▶ Deepak Mohanty Committee Report on Medium-term Path on Financial Inclusion
- ▶ Narasimham Committee Report on Banking Sector Reforms
- ▶ Uday Kotak committee on Corporate Governance
- ▶ Nachiket Mor Committee

## 7. Indian Financial Market

- ▶ Concept and functions of financial markets
- ▶ Importance of money market
- ▶ Types of capital market
- ▶ Distinguish between capital market and money market
- ▶ The stock exchanges in India
- ▶ Nature and functions of a stock exchange
- ▶ Advantages of stock exchanges
- ▶ Limitations of stock exchanges
- ▶ Insurance Industry - Insurance Industry and Reforms
- ▶ Financial Regulators – Role of SEBI & IRDA

## 8. Miscellaneous

- ▶ Government to recapitalize the PSB's over the next 2 years
- ▶ New RBI rule and regulation for peer to peer (P2P) lending
- ▶ Domestic Systemically Important Banks (SIBs) of India
- ▶ Financial Inclusion in India
- ▶ The Concept of Bad Bank
- ▶ Alternative Mechanism Panel for PSB consolidation
- ▶ Employee Provident Fund of India
- ▶ Enforcement Department In RBI
- ▶ Gold Monetization Scheme (GMS)
- ▶ Indian Post Payment Bank (IPPB)
- ▶ Indian Gold Coins/Gold Bullion Scheme

## 9. Agriculture

- ▶ New Agri Project - "Green Ag "
- ▶ Operation Green
- ▶ Agri-Market Infrastructure Fund
- ▶ Kisan credit card
- ▶ Krishi Kalyan Abhiyan
- ▶ Kisan Kalyan Pradhikaran
- ▶ Agriculture Price Policy (APP) in India
- ▶ Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)
- ▶ Bhavantar Bhugtan Yojana
- ▶ Foodgrain Production to touch a New Record of 284 83 Million Tonnes in 2017-18
- ▶ Sugar Production
- ▶ Maharashtra Adopt Food Park Model
- ▶ Gujarat's first Mega Food Park inaugurated in Surat
- ▶ Three Year Action Plan of Agricultural Education

## 10. Industry

- ▶ Department for Promotion of Industry and Internal Trade
- ▶ National Mission on Government e-Market (GeM) portal
- ▶ Integrated Scheme for Development of Silk Industry” for sericulture
- ▶ North East Industrial Development Scheme (NEIDS)
- ▶ Government Redefines MSME
- ▶ Udyam Sangam-2018 inauguration
- ▶ ‘One District One Product’ Summit inaugurated
- ▶ Pharma Promotion Tax Exempt: Tribunal
- ▶ Cabinet Identified Champion Services Sectors
- ▶ Purchasing Managers’ Index (PMI)
- ▶ Department of Commerce Developing National Logistics Portal
- ▶ National Entrepreneurship Awards 2018
- ▶ Incredible India Tourist Facilitator Certification
- ▶ Railways CONCOR begins coastal operations
- ▶ Air Sewa - 2.0
- ▶ Airports Privatization
- ▶ Drone regulations developed by Ministry of Civil Aviation
- ▶ Water Aerodrome
- ▶ NABH (Nextgen Airports for Bharat) Nirman Initiative
- ▶ Bansagar Canal Project
- ▶ Jal Marg Vikas Project
- ▶ National Waterways projects in North Eastern Region (NER)
- ▶ Declaration of irrigation projects as National Projects
- ▶ Portal launched for real-time information on National Waterways
- ▶ Revised PPP Port Concessions
- ▶ Solar Charkha Mission
- ▶ Patratu Super Thermal Power Plant
- ▶ National Energy Storage Mission
- ▶ Kudankulam Nuclear Power Plant (KNPP)
- ▶ Srinagar - Alusteng - Drass - Kargil – Leh Transmission System
- ▶ Development of renewable energy
- ▶ Additional Strategic Petroleum Reserves established
- ▶ TRAI Interconnect Rule
- ▶ The TRAI launches integration & availability of TRAI Mobile Apps on UMANG platform
- ▶ Cabinet Approves Easing of Spectrum Cap
- ▶ Strategic Investment Fund under NIIF
- ▶ O-SMART scheme

## 11. Infrastructure

- ▶ Western Dedicated Freight Corridor (WDFC)
- ▶ First Freight Village
- ▶ Bidder Information Management Systems (BIMS)
- ▶ Bhoomi Rashi - PFMS linkage
- ▶ National E-Mobility Programme
- ▶ Draft National Automotive Policy
- ▶ Advanced Motor Fuels Technology Collaboration Programme

## 12. Banking & Financial Sector

- ▶ Central Board of RBI
- ▶ Monetary Policy: A Fine Balance between Growth and Inflation
- ▶ RBI to link interest rates to external benchmarks replacing MCLR
- ▶ India Post Payments Bank (IPPB)
- ▶ Banks Board Bureau
- ▶ New RBI Norms Related to NPAs
- ▶ Parliament's Estimates Committee report on NPA's
- ▶ Prompt corrective action framework of RBI
- ▶ Mehta panel 5-point plan to fight NPAs
- ▶ Project Sashakt
- ▶ Inter-Creditor Agreement (ICA)
- ▶ Recapitalization of RRBS
- ▶ Pariwarta' scheme for power sector revival
- ▶ Companies Act Notified
- ▶ The arbitration and conciliation (amendment) bill, 2018
- ▶ Fugitive Economic Offenders Bill, 2018
- ▶ Name and Shame Wilful Defaulters
- ▶ National Financial Reporting Authority
- ▶ Public credit registry
- ▶ Currency in Circulation Improved
- ▶ Micro ATM
- ▶ NPCI launched UPI 2.0
- ▶ RBI allows Tokenization of Card Transactions
- ▶ Nilekani Panel on Strengthening the Digital Payments Ecosystem
- ▶ The Society for Worldwide Interbank Financial Tele- communication (SWIFT)
- ▶ Independent regulator for the payments industry
- ▶ Treasury Bill
- ▶ Participatory Notes
- ▶ Development Impact Bonds
- ▶ Bharat 22 ETF (Exchange Traded Fund)
- ▶ Total Expense Ratio
- ▶ World's First Block-chain Bond
- ▶ Share Repurchase
- ▶ Currency Derivative Trade Limit
- ▶ RBI eases hedging norms for overseas borrowings
- ▶ Commercial papers as a source of funds
- ▶ TReDS platform
- ▶ Merger of three public sector insurance firms
- ▶ Steering committee on fintech related issues
- ▶ RBI buys gold for first time in nearly a decade
- ▶ RBI Surplus transfer to Government
- ▶ RBI Launches Ombudsman scheme for NBFCs
- ▶ Government Owned Non-Banking Financial Corporations (NBFCs)
- ▶ Khan Committee recommendation on FPI
- ▶ Graded Surveillance Measure
- ▶ Pension Fund Regulatory and Development Authority
- ▶ Board of Management for Cooperative Banks
- ▶ Deposit Insurance and Credit Guarantee Corporation
- ▶ Reasons for fall of Rupee



## TEST: 12

### FUNDAMENTAL OF ECONOMY - 2 (EXTERNAL SECTOR + INTERNATIONAL INSTITUTES + MONEY, BANKING FINANCIAL MARKET AND OTHER PROVISIONS)

#### 1. Government Budgeting/ Deficits

- ▶ Budget
  - Plan and Non Plan Expenditure
  - Revenue, Nonrevenue
  - Receipts, Revenue Receipts, Tax Revenue Receipts, Non-Tax Revenue Receipts
  - Revenue Expenditure
  - Revenue Deficit, Fiscal Deficit, Primary Deficit
  - Deficit and Surplus Budget
- ▶ Deficit Financing

#### 2. Fiscal Policy - Revenue

- ▶ Tax Structure in India
- ▶ Tax – Direct Tax, Indirect Tax
- ▶ Methods of Taxation – Progressive , Regressive Proportional
- ▶ Value Added Tax – VAT in India
- ▶ Goods and Services Tax – GST , GST Council
- ▶ Service Tax
- ▶ DTC – Direct Tax Code

#### 3. Subsidies

- ▶ Food
- ▶ Fuel
- ▶ Fertilizers

#### 4. Planning

- ▶ Objectives – Major Objective of Planning
- ▶ Planning History
  - Regional and National Planning
  - Imperative and Indicative Planning
  - Visvesvaraya Plan, Gandhian Plan FICCI Proposal, Congress Plan Bombay Plan
  - Planning Commission and National Development Council (NDC)
  - Central Planning – 5 Year Plans, 20 Point Program, MPLADS
  - Decentralizes Planning
  - Analysis of 5 Year Plans
- ▶ 12<sup>th</sup> FYP –Targets – Economic Growth, Poverty and Unemployment, Education, Health, Infrastructure, Environment and Sustainability, Service Delivery
- ▶ NITI Aayog and its work

#### 5. Investment Models

- ▶ Measures of Investment
- ▶ Capital and investment
- ▶ Factors affecting investment
- ▶ Classification of Investment
  - FDI
  - Angel Investors and Start-ups
  - M&A



- ▶ Investment Models
- ▶ Role of State
- ▶ PPP (Public-Private Partnership)
- ▶ Savings and Investment Trends
- ▶ National Investment Fund (NIF)
- ▶ Unit Trust of India
- ▶ Global Depository Receipts/Foreign Currency Convertible Bonds
- ▶ Portfolio Investment from Foreign Institutional Investors
- ▶ Non-Resident Indian Investments
- ▶ Mutual Funds
- ▶ Pension Reforms
- ▶ Main Features and Architecture of the New Pension System

## 6. Schemes related to Finance

- ▶ Make In India
- ▶ Pradhan Mantri Garib Kalyan Yojana
- ▶ Digi-DhanVyapar/ Lucky Grahak Yojana
- ▶ Pandit Deendayal Upadhyay Shramev Jayate Karyakram
- ▶ Pradhan Mantri Jan Dhan Yojana
- ▶ Pradhan Mantri Mudra Yojana

## 7. External Sector

- ▶ Fixed Foreign Currency Market
- ▶ Float Foreign Currency Market
- ▶ Balance Of Payments
  - Current Account
  - Capital Account
- ▶ Foreign Portfolio Investment
  - FII
  - FDI
- ▶ Exchange Market
  - LERMS

- NEER
- REER
- EFF
- Purchasing Power
- ▶ Depreciation
- ▶ Appreciation
- ▶ Hard currency
- ▶ Soft currency
- ▶ Cheap currency
- ▶ Dear currency
- ▶ SEZ
- ▶ Convertibility of Currency
- ▶ India's Forex Reserves
- ▶ GAAR
- ▶ Foreign Trade Policy

## 8. International Organizations

- ▶ United Nations
- ▶ Food and Agriculture Organization (FAO)
- ▶ International Civil Aviation Organization (ICAO)
- ▶ International Fund for Agricultural Development (IFAD)
- ▶ International Labour Organization (ILO)
- ▶ International Maritime Organization (IMO)
- ▶ International Monetary Fund (IMF)
- ▶ International Telecommunication Union (ITU)
- ▶ United Nations Educational, Scientific and Cultural Organization (UNESCO)
- ▶ United Nations Industrial Development Organization (UNIDO)
- ▶ Universal Postal Union (UPU)
- ▶ World Bank Group (WBG)
- ▶ International Bank for Reconstruction

- and Development (IBRD)
- ▶ International Finance Corporation (IFC)
- ▶ International Development Association (IDA)
- ▶ World Health Organization (WHO)
- ▶ World Intellectual Property Organization (WIPO)
- ▶ World Meteorological Organization (WMO)
- ▶ World Tourism Organization (UNWTO)
- ▶ World Trade Organization (WTO)
- ▶ Asian Development Bank
- ▶ Asian Infrastructure Investment Bank (AIIB)

- ▶ New Development Bank
- ▶ African Development Bank

## 9. Trade agreements

- ▶ RCEP
- ▶ TPP
- ▶ NAFTA
- ▶ MERCOSUR
- ▶ Southern African Development Community (SADC)
- ▶ ASEAN
- ▶ SAFTA

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**TEST: 13****FUNDAMENTAL OF SCIENCE - 1**  
(BIOLOGY + EVERYDAY SCIENCE)**BIOLOGY****1. Chemical Building Blocks of Life****2. History and Origin of Life****3. Cells**

- ▶ Cell Structure
- ▶ Membranes
- ▶ Cell-Cell Interactions
- ▶ Energy and Metabolism
- ▶ Respiration
- ▶ Photosynthesis
- ▶ How Cells Divide
- ▶ Sexual Reproduction

**4. Genetics**

- ▶ Inheritance
- ▶ DNA, The Genetic Material
- ▶ Gene Expression
- ▶ Gene Regulation
- ▶ Mutation
- ▶ Recombinant DNA Technology

**5. Classification of Living Things**

- ▶ Classification and Domains of Life
- ▶ General Biology/Classification of

## Living Things/Viruses

- ▶ Prokaryotes
- ▶ Eukaryotes
  - Protists
  - Plants
  - Fungi
  - Animals

**6. Evolution**

- ▶ Evolution of Life
- ▶ Animal Evolution
- ▶ Human Evolution

**7. Tissues**

- ▶ Epithelial tissue
- ▶ Connective tissue
- ▶ Muscle tissue

**8. Endocrine system**

- ▶ Hypothalamus
- ▶ Pineal body (epiphysis)
- ▶ Pituitary gland (hypophysis)
- ▶ Thyroid
- ▶ Adrenal glands
- ▶ Reproductive glands

**9. Respiration**

- ▶ External and Internal Respiration
- ▶ Respiratory system in Plants
- ▶ Respiratory System in Insects

- ▶ Respiratory System in Humans and Animals

## 10. The Transport System in Organisms

- ▶ Transport system in a Cell
- ▶ Transport System in Plants
- ▶ Transport System in Animals
- ▶ Blood Vascular System
- ▶ The Lymphatic System

## 11. Skeletal and Muscular Systems

- ▶ Bone and Skeleton System (Osteology)
- ▶ Ligaments (Syndesmology)
- ▶ Muscular System (Myology)
- ▶ Vertebrates

## 12. Reproduction

- ▶ Asexual Reproduction in Plants
- ▶ Asexual Reproduction in Animals
- ▶ Sexual Reproduction in Plants
- ▶ Sexual Reproduction in Animals
- ▶ Sexual Reproduction in Humans

## 13. Excretion, Osmoregulation and Thermoregulation

- ▶ Excretory products
- ▶ Excretion in plants
- ▶ Excretion in Animals
- ▶ Osmoregulation, ADH and formation of Urine in Animals
- ▶ Physiological and Behavioural Adjustments

## 14. Nutrition

- ▶ Classification by Source of Energy and Carbon
- ▶ Plant Nutrition
- ▶ Animal Nutrition
- ▶ Human Diet
- ▶ The Digestive System

## 15. Economic Zoology

- ▶ Beneficial animals: Corals - Earthworm - Vermiculture - Beneficial insects - Prawns - Lobsters - Crabs - Pearl oysters - Fishes - Guano - Aquarium - Vivarium.
- ▶ Harmful animals: Disease causing organisms - Vectors - Poisonous organisms - Fouling organisms - Pests.

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**TEST: 14****FUNDAMENTAL OF SCIENCE - 2****SCIENCE & TECHNOLOGY**

(BIOTECHNOLOGY + HEALTH + DEFENCE + SPACE  
+ IT + TELECOM + IPR + NANOTECH + ROBOTICS +  
NUCLEAR TECH)

**BIOTECHNOLOGY****1. Genetics and biotechnology**

- ▶ Industrial genetics
- ▶ Protoplast and cell fusion technologies
- ▶ Genetic engineering
- ▶ DNA sequencing
- ▶ Nucleic acid probes
- ▶ Genomics and proteomics
- ▶ Antisense and RNA interference
- ▶ Potential laboratory biohazards of genetic engineering
- ▶ Bioprocess/fermentation technology

**2. Biological fuel generation**

- ▶ Global warming and the significance of fossils fuels
- ▶ Photosynthesis: the ultimate energy source
- ▶ Biofuels from biomass
- ▶ Bioethanol from biomass
- ▶ Biodiesel
- ▶ Methane
- ▶ Hydrogen

**3. Environmental biotechnology**

- ▶ Microbial Ecology Environmental Biotechnology

- ▶ Waste water and sewage treatment
- ▶ Landfilling technologies
- ▶ Composting
- ▶ Bioremediation
- ▶ Detect and monitoring of pollutants
- ▶ Microbes and the geological environment
- ▶ Environmental sustainability and clean technology

**4. Plant and forest biotechnology**

- ▶ Plant biotechnology
- ▶ Forest biotechnology

**5. Animal and insect biotechnology**

- ▶ Genetic manipulation and transgenic animals
- ▶ Genetically engineered hormone and vaccines
- ▶ Animal organs for human patients
- ▶ Genetically modified insects

**6. Food and beverage biotechnology**

- ▶ Food and beverage fermentations
- ▶ Microorganisms as food
- ▶ Enzymes and food processing

- Amino acids, vitamins and sweeteners
- Organic acids and polysaccharides
- Public acceptance and safety of new biotechnology foods
- Biotechnology and medicine
- Pharmaceuticals and biopharmaceuticals
- Antibiotics
- Vaccines and monoclonal antibodies
- Biopharmaceuticals/therapeutic proteins
- Pharmacogenetics
- Molecular biology and human disease
- Diagnostics in developing countries
- Gene therapy
- Systems biology and medicine
- Stem cell biotechnology

## 7. Protection of biotechnological inventions

- Patent protection Trade secrets
- Plant breeders' rights

### INSTITUTIONS & POLICY

- India's policy in the field of the science and technology
  - The S&T policy resolution of 1958
  - S&T policy of 1983
  - S&T policy of 2003
  - S&T policy of 2013
- Institutional structure
  - Department of Science & Technology
  - CSIR
  - Survey of India
  - Science and Engineering Research

- Council
  - Technology Development Board
  - National Accreditation Board For Testing And Calibration Laboratories
- Science and technology as a source of Human Resource Development
- Awards related to Science
- New Initiatives Aligned with the National Agenda
- India and World collaboration in science projects
- Technology Vision Document 2035
- National Biotechnology Development Strategy 2015-2020
- National Intellectual Property Rights Policy
- Organ donation rules in India
- Policy on Synthetic Biology

### SPACE

- Types of orbits
- Launch Vehicle
- Satellite communication in India
- INSAT Satellite application
- Remote sensing applications
- Cryogenic rockets
- Global Positioning System
  - Galileo
  - GLONASS
  - IRNSS
  - GAGAN
- Chandrayaan – I & II
- Mars Orbiter Mission
- Space Organisations
- Space race/Space junk
- Recent updates
- South Asia Satellite: Significance

- ▶ Neutrino Observatory
- ▶ Solar Mission- ADITYA
- ▶ Gravitational Waves

## DEFENCE

- ▶ Missile system and classification
  - On the basis of type
  - On the basis of launch vehicle
  - On the basis of Range
  - On the basis of propulsion system
- ▶ India's Missile System
  - Agni
  - Prithvi
  - Trishul
  - Nag
  - Dhanush
  - Astra
  - Prahaar
- ▶ BrahMos Missile System
- ▶ Indian Submarines and Naval Ships
- ▶ Light Combat Aircraft
- ▶ Unmanned Aerial Vehicle
- ▶ Stealth technology
- ▶ Chemical Weapon
- ▶ Biological Weapon

## IT, ELECTRONICS & TELECOM

- ▶ Computers
  - Generation of computers
  - Computer terminologies
  - Supercomputer and its applications
- ▶ Information technology
  - Components of IT
  - IT enabled services

- Application of IT
- ▶ Display technologies
  - Cathode ray
  - LCD
  - LED
  - Plasma Monitors
  - OLED
- ▶ Telecommunications
  - Mobile generations
  - Smartphone
  - Important concepts
- ▶ Government initiatives
  - Digital India Initiative
  - MeghRaj
  - Code Free for India
  - E-Kranti
  - Bharat Net project
  - Bharat QR
- ▶ Contemporary debates
  - Net Neutrality
  - Internet of Things
  - Big Data Initiative and Privacy
  - Cyber crime and security

## NANO-SCIENCE & NANO TECHNOLOGIES

- ▶ What is Nanoscience and Nanotechnology?
- ▶ Origination of Nanoscience and Technology
- ▶ Basics of Nanoscience
- ▶ Nanomaterials
- ▶ Applications of nanotechnology
  - Nano medicine
  - Semiconductors and computing
  - Food

- Textiles
- Sustainable energy
- Environment
- Transport
- Space
- Agriculture
- ▶ Adverse Health and Environmental Impacts of Nanotechnology
- ▶ Social and Ethical Impacts:
- ▶ Nano-science and nano-technology in India

## ROBOTICS

- ▶ What is Robotics?
- ▶ Machine vs Computer vs Robots
- ▶ Parts of a Robot
  - Controller
  - Manipulator
  - End Effector
  - Sensor
- ▶ Classification of Robots
  - Rolling Robots
  - Walking Robots
  - Autonomous Robots
- ▶ Artificial Intelligence
- ▶ Advantages and Disadvantages of Robot
- ▶ Applications of Robotics
  - Industrial Sector
  - Aerospace
  - Healthcare Delivery
  - Outer Space
  - Exploration
  - Military Robots
  - Disaster Areas
  - Entertainment

- Agriculture
- Domestic work

## NUCLEAR ENERGY

- ▶ Types of nuclear reactions
- ▶ Nuclear Power Reactor
- ▶ N-Power Policy of India
- ▶ Advantages of Nuclear Energy
- ▶ Disadvantages of Nuclear Energy
- ▶ Non-energy applications of Nuclear energy
- ▶ Impact of Radiation
- ▶ Issue of Radioactive Waste
- ▶ Institutions involved in Nuclear energy Development, AERB
- ▶ Safety standards in Nuclear Power plants
- ▶ Nuclear & Radiological Disasters

## MISCELLANEOUS

- ▶ **SPACE TECHNOLOGY & EVENTS**
  - ISRO's Mission/Programme:
  - NASA's Mission/Programme:
  - Other Agencies Missions
  - Point Nemo
  - Exoplanet
  - 'Super-Earth' in Constellation Cassiopeia
  - Galaxy Proto-Supercluster – Hyperion
  - Einstein's Theory of Relativity
  - Einstein's theory
  - Sun's gravity
  - Einstein Ring
  - Sunspot Cycle



- Method to simulate, predict solar activity over ten years developed
- ISRO is planning to mine Moon
- NASA confirms saturns rings will be gone in million years
- New Source of Neutrinos in Space discovered
- Earth has three moons
- China unveils 'Heavenly Palace' space station
- The International Space Station (ISS) is celebrating its 20th birthday
- Remove DEBRIS
- The case for making Pluto a planet again
- Icarus- farthest star
- Cosmic Microwave Background Radiation (CMBR)
- Green Propellant
- Plan to Prevent Asteroid Attack
- Cooperation in the peaceful uses of outer space
- 'EPIC' planet
- Interstellar Mapping and Acceleration Probe
- Atacama Large Millimeter/ submillimeter Array
- High Resolution Imaging Science Experiment
- GLONASS of Russia
- Pakistan's remote sensing satellites PRSS-1 and PakTes-1A
- Atacama Large Millimeter Array (ALMA)
- World's fastest man-made spinning object
- India-Based Neutrino Observatory
- Human space flight Programme
- NASA's Kepler Space Telescope retired
- NASA Parker Solar Probe Mission
- Dwarf planet 'The Goblin' discovery
- Space X BFR lunar Mission
- Meteorite found in Rajasthan
- Unispace Nanosatellite Assembly & Training programme (UNNATI)
- The Lyrid meteor shower
- RAMA (Reconstituting Asteroids into Mechanical Automata)
- Uakitite
- Draft Space Activities Bill, 2017
- Resource Prospector Mission
- GRACE MISSION
- Gaofen – 11
- **DEFENCE TECHNOLOGY**
- **India's Missile Development Program**
  - PrithviSeries
  - Agni Series
  - Akash
  - Nag
  - Man Portable Anti-Tank Guided Missile (MPATGM)
  - Trishul
  - Brahmos
  - Ballistic Missile Defence System
  - Prithvi Air Defence (PAD)
  - Advanced Air Defence (AAD)
  - K-15 Sagarika
  - Dhanush
  - Shaurya
  - Nirbhay
  - Prahaar
  - Astra
  - Pinaka Rocket
  - Made in India' Artillery boost

- Advanced Towed Artillery Gun System (ATAGS)
- Rustom-2
- Offshore Patrol Vessel ICGS Varaha launched
- Vijaya: Indigenously built patrol vessel commissioned by Indian Coast Guard
- INS Chakra
- Scorpene Submarine Programme
- Maritime boundary
- Vehicle Location Tracking Devices and Emergency Buttons
- LCA TEJAS clears maiden mid-air refuelling trial
- India's first missile tracking ship
- Solid Fuel Ducted Ramjet (SFDR)
- Defence Innovation Hubs
- India's first indigenous anti-nuclear medical kit
- Defence Industry Corridor
- Bhabha Kavach
- Mission Raksha Gyan Shakti
- Intermediate Range Nuclear Forces Treaty, 1987
- **HEALTH & BIOTECHNOLOGY**
  - Rare Diseases
  - Thalassaemia
  - Down Syndrome
  - New Classification of Diabetes
  - Maturity-Onset Diabetes of the Young (MODY)
  - Lymphatic Filariasis
  - New Influenza Research Programme
  - Drug-resistant Superbug Spreading
  - Zoonotic Diseases
  - Nipah Virus
  - Lassa Fever
  - Nepal, first country in South-East Asia to Eliminate Trachoma
  - Measles Rubella Vaccination
  - Zearalenone, a fungal toxin
  - Oxytocin
  - WHO Publishes Essential Diagnostics List
  - Generic Drugs: New Rules Soon for Labelling
  - Fixed Dose Drug Combinations (FDCs)
  - World's first Bio-electronic medicine
  - 5th Global Forum on TB Vaccines
  - Drug Eluting Stents
  - Dual Mechanism for Embryonic Stem Cells to Maintain Pluripotency
  - Scientists Grow Human Oesophagus in Lab
  - Three-Parent Babies Permitted in UK
  - New Sheep Insemination Technique
  - Mass Embryo Transfer
  - CRISPR Technology
  - Telerobotic Surgery
  - Bionic mushrooms
  - Biosensor Technique to Detect Chikungunya Virus Mitra Clip
  - Blockchain Technology in Drug Supply-chain
  - Rosehip neurons: The newest neuron in the human brain
  - Nerve Agent
  - WHO called for the Elimination of the so-called 'One Centimetre Per Hour' Benchmark

- Earth BioGenome Project
- 100k Genome Asia Project
- Human Microbiome
- Integrated Health Information Platform (IHIP)
- Eat Right India Movement
- Food Fortification
- Transgenic Rice with Reduced Arsenic Accumulation
- Fighting Fake Drugs through Blockchain
- Project Dhoop
- Eliminate Trans-fats by 2022
- New Norms for Labelling Packaged GM food
- Animal-Free Testing for Drugs
- Elysia chlorotica
- Quadrivalent Influenza Vaccine
- Fortified Rice
- Coloured X-Ray on Human
- 'P Null' Phenotype
- Bacteria Wolbachia
- Affordable Water Disinfection System- Oneer
- Bisphenol A (BPA)
- **INFORMATION TECHNOLOGY & COMPUTERS**
  - Cyber-Physical System
  - BullSequana Supercomputer
  - National Supercomputing Mission
  - Pratyush Computer
  - SpiNNaker – World's Largest Brain – Like
  - Supercomputer
  - Shakti – India's first indigenous Microprocessor
  - India's First Locally Developed 4G/ LTE Telecom System
- 5G
- IIT – Delhi launches first 5G Radio Lab
- Open Transit Data Platform
- Three Factor Authentication
- Facial Authentication Working
- First in Asia: Facial recognition technology at Bengaluru airport
- Digital Sky Platform
- M2M Communication
- Mobile Towers are harmless: CPCB
- Adoption of Blockchain Technology to Stop Bank Frauds
- India's First Blockchain District in Telangana
- NASSCOM unveils centre for Data, AI
- Mumbai to have India's First Artificial Intelligence Centre
- Model International Center for Transformative AI (ICTAI)
- Saposhi
- GravityRat Malware
- ToneTag
- World Congress on Information Technology
- **NIFTEM**
  - Scutoid: A New Shape Discovered
  - Concept of Living Will
  - ALTERNATIVE TECHNOLOGIES
  - Methanol as cooking fuel
  - Gas Hydrates or Flammable Ice:
  - World's first hydrogen train
  - Repurposed Used Cooking Oil (RUCO)
  - Hydrogen-CNG

- Europe's first solar panel recycling plant
- Bengaluru Maps its Solar Wealth
- Shakti Shala Solar Park
- Global Centre for Nuclear Energy Partnership
- Apsara – U Reactor
- Experimental Advanced Superconducting Tokamak (EAST)
- World's first Hyperloop passenger capsule unveiled
- Hyperloop between Mumbai and Pune
- Aerogel- Super-insulating gel
- Thermal Battery
- India's first coal-gasification fertilizer plant
- Quadricycles
- NANO TECHNOLOGY
  - Graphene
  - IIT-Madras unveiled world's first remotely operable LEAP microscope
  - Particle Decay
  - Rydberg Polarons
  - KATRIN Experiment
  - Cyclone-30 India's biggest cyclotron facility becomes operational
- SCHEMES & INITIATIVES
  - Prime Minister's Science Technology And
  - Innovation Council (PM-STIAC)
  - Young Scientist Programme
  - Innovate India Platform
  - Innovation Cell
  - National Statistics Day
  - Children's Science Congress
  - Imprint II
  - Bharatnet Covers 1 Lakh Gram Panchayats
  - National Viral Hepatitis Control Program
  - National Biopharma Mission
  - Agmark online system
  - World Intellectual Property Organization (WIPO) treaties
  - National Intellectual Property (IP) Award 2018
  - Intellectual Property Rights Mascot
  - GI Tag
  - India to expand polar research to Arctic
  - Deep Ocean Mission (DOM)
  - Chai Sahay App by Tea Board of India
  - MISCELLANEOUS
  - Glass Fibre Reinforced Gypsum Concrete
  - EyeROV TUNA India's first underwater robotic drone handed over to NPOL
  - Nobel Prize 2018
  - Prof SN Bose 125th Anniversary
  - Stephen Hawking
  - Raman Effect
  - Li-Fi
  - Vaterite
  - Impact Based Forecasting Approach
  - India's first engine-less train
  - Other Scientific Achievements in India in 2018
  - Dry Sorbent Injection (DSI)
  - Microcrystallites
  - SARAS

- Silver Copper Telluride
  - Ice VII
  - 2019 - International Year of the Periodic Table of Chemical Elements
  - New Element with Magnetic Properties Discovered
- Indian National Centre for Ocean Information Service (INCOIS)

<b>TEST: 15</b>	<b>Polity Revision Test 1 (Complete Polity + Current Affairs)</b>
<b>TEST: 16</b>	<b>Polity Revision Test 2 (Complete Polity + Current Affairs)</b>
<b>TEST: 17</b>	<b>History Revision Test (Complete History + Art and Culture of India)</b>
<b>TEST: 18</b>	<b>Geography Revision Test (Complete Geography + Current Affairs)</b>
<b>TEST: 19</b>	<b>Environment Revision Test (Complete Environment + Current Affairs)</b>
<b>TEST: 20</b>	<b>Economy Revision Test (Complete Economy + Current Affairs)</b>
<b>TEST: 21</b>	<b>Science &amp; Technology Revision Test (Complete Science &amp; Technology + Current Affairs)</b>
<b>TEST: 22</b>	<b>Mock 1 (Paper 1)</b>
<b>TEST: 23</b>	<b>Mock 2 (Paper 2 : CSAT)</b>
<b>TEST: 24</b>	<b>Mock 3 (Paper 1)</b>
<b>TEST: 25</b>	<b>Mock 4 (Paper 1)</b>
<b>TEST: 26</b>	<b>Mock 5 (Paper 2 : CSAT)</b>
<b>TEST: 27</b>	<b>Mock 6 (Paper 1)</b>
<b>TEST: 28</b>	<b>Mock - 7 (Paper 1)</b>
<b>TEST: 29</b>	<b>Mock - 8 (Paper 2 : CSAT)</b>

<b>TEST: 30</b>	<b>Mock - 9 (Paper 1)</b>
<b>TEST: 31</b>	<b>Mock - 10 (Paper 1)</b>
<b>TEST: 32</b>	<b>Mock - 11 (Paper 2 : CSAT)</b>
<b>TEST: 33</b>	<b>Mock - 12 (Paper 1)</b>
<b>TEST: 34</b>	<b>Current Affairs (Economic Survey + Budget + IYB)</b>
<b>TEST: 35</b>	<b>Mock - 13 (Paper 1)</b>
<b>TEST: 36</b>	<b>Mock - 14 (Paper 1)</b>
<b>TEST: 37</b>	<b>Mock - 15 (Paper 2 : CSAT)</b>
<b>TEST: 38</b>	<b>Current Affairs (May + June, 2020)</b>
<b>TEST: 39</b>	<b>Current Affairs (July &amp; August, 2020)</b>