

ALL INDIA MOCK TEST
TEST – 3 KEY WITH EXPLANATION

1. Answer : B

Option A: Wrong . Balwant rai Mehta committee was constituted on january 1957 and it was recommended to form the three tier panchayat raj system.

Option C: wrong. Rajasthan was the first state to establish panchayat raj (Oct 2,1959)

2. Answer: C

3. Answer :B

Explanation: The governor of the State shall after every five years constitute a finance commission to review the financial position of the panchayat. The state legislature may be provide for the composition of the commission ,the required qualifications of its member and the manner of their selection.

4. Answer D

In V. Ravichandran v. UOI and again in Shilpa Aggarwal v. Aviral Mittal, the Supreme Court, following Habeas Corpus petitions, guided the outline return of a child to USA and UK individually, leaving all angles identifying with child welfare to be researched by Courts in the outside purview. In May 2011, in Ruchi Majoo V. Sanjeev Majoo, in an interest, in a Guardian and Wards appeal, the Supreme Court has coordinated that the procedures for choosing authority rights might go ahead under the steady gaze of the Guardian Judge at Delhi and till then the between time care should be with the mother. The father has been given appearance rights.

5. Answer A

Fundamental rights in India are the rights guaranteed under Part III (Articles 12-35) of the Constitution of India.

There are six fundamental rights (Article 12 - 35) recognised by the Indian constitution

- The right to equality (Articles 14-18)
- The right to freedom (Articles 19-22)
- The right against exploitation (Articles 23-24)
- The right to freedom of religion (Articles 25-28)
- Cultural and educational rights (Articles 29-30)
- The right to constitutional remedies (Article 32 and 226).

6. Answer: D

The basic structure constitutes the following elements:

- The supremacy of the Constitution

- Republican and Democratic forms of Government
- Secular character of the Constitution
- Separation of Powers between the legislature, the Executive, and the Judiciary
- Federal Character of the Constitution

Shelat and Grover, JJ., added the following to the above list:

- The mandate to build a welfare state contained in the Directive Principles of State Policy
- Maintenance of the unity and integrity of India
- The sovereignty of the country

Hegde and Mukherjee, JJ., had their list of the elements of the basic structure, which included:

- The sovereignty of India
- The democratic character of the polity
- The unity of the country
- Essential features of individual freedom
- The mandate to build a welfare state

Jaganmohan Redd, J., believed that it was the Preamble that laid down the basic features of the Constitution, which are:

- A sovereign democratic republic
- The provision of social, economic, and political justice
- Liberty of thought, expression, belief, faith, and worship
- Equality of status and opportunity

7. Answer: C

Explanation: Article 355 – It shall be the duty of the Union to Protect every against External aggression and Internal disturbance and to ensure that the Government of every State is carried on in accordance with the provisions of this constitution.

8. Answer: A

9. Answer: D

Explanation:

- a) State List : Taxes on lands and buildings.
 b) Union List : Railways
 c) Concurrent List : Criminal procedure.

10. Answer: D

Explanation: Article 245 to 255 in Part XI of the constitution

11. Solution (d)

Explanation:

- Parliamentary privileges are special rights, immunities and exemptions enjoyed by the two Houses of Parliament, their committees and their members.
- They are necessary in order to secure the independence and effectiveness of their actions. Without these privileges, the Houses can neither maintain their

authority, dignity and honour nor can protect their members from any obstruction in the discharge of their parliamentary responsibilities. These extended to the attorney general of India and Union ministers.

- It must be clarified here that the parliamentary privileges do not extend to the president who is also an integral part of the Parliament.
- can punish members as well as outsiders for breach of its privileges or its contempt by reprimand, admonition or imprisonment
- Originally, the Constitution (Article 105) expressly mentioned two privileges, that is, freedom of speech in Parliament and right of publication of its proceedings. It should be noted here that the Parliament, till now, has not made any special law to exhaustively codify all the privileges

12. Solution A

Explanation:

- Introduction and passage of ordinary bills. & Constitutional amendment bills
- Introduction and passage of financial bills involving expenditure from the Consolidated Fund of India.
- Election and impeachment of the president.
- Making recommendation to the President for the removal of Chief Justice and judges of Supreme Court and high courts, CEC and CAG
- Approval of proclamation of all three types of emergencies by the President.
- Selection of ministers including the Prime Minister. However, irrespective of their membership, they are responsible only to the Lok Sabha.
- Consideration of the reports of the constitutional bodies like Finance Commission, Union Public Service Commission, comptroller and auditor general, etc.
- Enlargement of the jurisdiction of the Supreme Court and the Union Public Service Commission.

13. Solution (b)

Explanation:

The charged expenditure is non votable by the Parliament, that is, it can only be discussed by the parliament while the other type has to be voted by the Parliament.

The list of the charged expenditure is as follows:

- Emoluments and allowances of the President, Chairman and the Deputy Chairman of the Rajya Sabha, Speaker and the Deputy Speaker of the Lok Sabha.
- Salaries, allowances and pensions of the judges of the Supreme Court.
- Pensions of the judges of high courts.
- Salary, allowances and pension of the CAG, UPSC. Administrative expenses of the Supreme Court, CAG & UPSC.
- The debt charges for which the Government of India is liable, including interest, sinking fund charges and redemption charges and other expenditure relating to the raising of loans and the service and redemption of debt.

- Any sum required to satisfy any judgement, decree or award of any court or arbitral tribunal

14. Solution (C)

Explanation:

A money bill can only be introduced in the Lok Sabha and that too on the recommendation of the president. Can be introduced only by a minister.

The Rajya Sabha has restricted powers with regard to a money bill. It cannot reject or amend a money bill. It can only make the recommendations. It must return the bill to the Lok Sabha within 14 days. The Lok Sabha can either accept or reject all or any of the recommendations of the Rajya Sabha

Finally, when a money bill is presented to the president, he may either give his assent to the bill or withhold his assent to the bill but cannot return the bill for reconsideration of the Houses

15. d) All of the above.

ARTICLE 13 : LAWS INCONSISTENT WITH OR IN DEROGATION OF THE FUNDAMENTAL RIGHTS

(1) All laws in force in the territory of India immediately before the commencement of this Constitution, in so far as they are inconsistent with the provisions of this Part, shall, to the extent of such inconsistency, be void.

(2) The State shall not make any law which takes away or abridges the rights conferred by this Part and any law made in contravention of this clause shall, to the extent of the contravention, be void.

(3) In this article, unless the context otherwise required, – (a) “law” includes any Ordinance, order, bye-law, rule, regulation, notification, custom or usage having in the territory of India the force of law;

(b) “laws in force” includes laws passed or made by a Legislature or other competent authority in the territory of India before the commencement of this Constitution and not previously repealed, notwithstanding that any such law or any part thereof may not be then in operation either at all or in particular areas.

(4) Nothing in this article shall apply to any amendment of this Constitution made under article 368.

16. Answer C

17. Answer C

18. Answer C

19. Answer D

20. Answer B

21. Answer A

22. Answer D

23. Answer D

24. Answer A

25. Answer D

26. Answer B

27. Answer C

28. Answer D

29. Answer C

30. Answer D

31. Answer B

32. Answer C

Explanation-> G.O.I.act -1935 – important provisions.

Provincial autonomy

1. The Act gave more autonomy to the provinces.
2. Diarchy was abolished at the provincial levels.
3. The Governor was the head of the executive.
4. There was a Council of Ministers to advise him. The ministers were responsible to the provincial legislatures who controlled them. The legislature could also remove the ministers.
5. However, the governors still retained special reserve powers.
6. The British authorities could still suspend a provincial government.

Central Government powers

1. The subjects under the Federal List were divided into two: Reserved and Transferred.
2. The reserved subjects were controlled by the Governor-General who administered them with the help of three counsellors appointed by him. They were not responsible to the legislature. These subjects included defence, ecclesiastical affairs (church-related), external affairs, press, police, taxation, justice, power resources and tribal affairs.
3. The transferred subjects were administered by the Governor-General with his Council of Ministers (not more than 10). The Council had to act in confidence with the legislature. The subjects in this list included local government, forests, education, health, etc.

4. However, the Governor-General had 'special powers' to interfere in the transferred subjects

33. Answer B

Explanation->

Komaram Bheem was a tribal leader in Telangana who had rebelled against the Nizam's rule there. He championed the rights of the Adivasi community in India and is still considered a deity amongst the Gond community of Andhra Pradesh and Telangana.

During 1817-19 the Bhils revolted against their new masters, the English East India Company. The Company's authorities alleged that the revolts had been encouraged by Peshwa Bajji II and his lieutenant Trimbakji Danglia. Encouraged by the British reverses in the Burman war, the Bhils under their leader Sewram again revolted in 1825.

34. Answer C

Explanation->

- It recommended the abolition of diarchy and the setting-up of representative governments in the provinces.
- It also recommended the retention of separate communal electorates until the communal tensions had died down.
- The Simon Commission led to the Government of India Act 1935 which acted as the basis for many parts of the current Indian Constitution.
- The first provincial elections were held in 1937 and it saw Congress governments being set up in almost all the provinces.

35. Answer C

Explanation->

Matangini Hazra was an Indian revolutionary and social activist who participated in the Indian independence movement. During Quit India Movement, on 29 September 1942, she was shot dead by the British Indian police in front of the Tamluk Police Station (Midnapore District).

36. Answer C

Explanation->

The Indigo Rebellion (Neel Bidroho) took place in Bengal in 1859-60 and was a revolt by the farmers against British planters who had forced them to grow indigo under terms that were greatly unfavourable to the farmers. Indigo cultivation started in Bengal in 1777. Indigo was in high demand worldwide.

37. Answer D

Explanation->

French settlement consisting of five geographically isolated enclaves on the Indian Subcontinent that were once French East India Company industries. In 1950 and 1954, they were de facto absorbed into the Republic of India. Pondicherry,

Karaikal, Yanam (Andhra Pradesh) on the Coromandel Coast, Mahe on the Malabar Coast, and Chandernagor in Bengal were the enclaves.

38. Answer C

Explanation->

On April 6, 1930, M.K. Gandhi formally launched the **Civil Disobedience Movement** by picking a handful of salt after completing the historic '**Dandi March**' from Sabarmati Ashram to Dandi, thus violating the government's **salt law**. He was a driving force behind the movement, inspiring grassroots participation in the liberation struggle. The Civil Disobedience Movement spread across the country as a result of the defiance of the **salt law**. Salt production spread across the country during the first phase of the civil disobedience movement, and it became a symbol of the people's defiance of the government.

39. Answer A

Explanation->

The following are the merits of railways:

- Different dimensions such as business, sightseeing, pilgrimage, and transportation are possible through railways.
- The economic life of the country is taken care.
- Enabled untouchable and others to travel in same train.
- Expanded connected markets in India.

40. B

Explanation->

Originally written in 1882, by Bankim Chandra Chatterjee Anandamath takes the reader back to Bengal in the clutches of the famine, the backdrop of the pre-independence struggle and the turmoil of human lives caught in this frame of time. The plot of the novel reveals the various dimensions of life in the backdrop of the Sannyasi Rebellion—such as the plight of the people wrecked by lack of food and hunger that collapsed there..

41. Answer D

Explanation->

Das Kabir Das, a mystical poet and great Saint of India, was born in the year 1440 and died in 1518. According to Islam, the meaning of the Kabir is something very big and great. Kabir Panth is a huge religious community that identifies Kabir as the originator of the Sant Mat sects. The members of Kabir Panth are known as the Kabir panthis who had extended all over the north and central India. Some of the great writings of the Kabir Das are Bijak, Kabir Granthawali, Anurag Sagar, Sakhi Granth, etc. It is clearly not known about his birth but it is noted that he was raised by a very poor Muslim weavers family. He was very spiritual and became a great Sadhu. He got fame all over the world because of his influential traditions and culture.

42. Answer B

Explanation->

The Iqta system was a unique type of land distribution and administrative system introduced during the reign of Iltutmish. In the Iqta system the lands of the Delhi Sultanate were divided into several large and small tracts called Iqta and assigned these Iqtas to the Sultan's soldiers, officers and nobles.

43. Answer B**Explanation->**

Gopala (750–770 CE) was the **founder of the Pala dynasty** in the Indian Subcontinent's Bihar and Bengal provinces. Pala is a word that signifies "**protector**," and it was used as a suffix for all Pala monarchs' names. He ascended to power in Gaur / Gwal approximately around 750 CE after being elected by a group of provincial chieftains. Before Gopala, Bengal went through a period of unrest due to the lack of a strong government, and the entire region was ripped apart by internal strife and disrupted by foreign invasions. Gopala ended this state of affairs and brought peace in the Bengal region.

44. Answer A**Explanation->**

The Mansabdari system was the administrative system introduced by Akbar in Mughal Empire during 1571. The word 'Mansab' is of Arabic origin meaning rank or position. Hence, Mansabdari was a system of ranking the government officials and determined their civil & military duties, along with their remunerations.

45. Answer A**Explanation->**

- Professor Habibullah has expressed the opinion that the conquest of north India by the Turks created an urban revolution. The Turk rulers permitted every person to live within cities without any discrimination on grounds of class, caste or religion.
- Therefore, all sorts of people—rulers, labourers, educated ones, traders, the Brahmanas, the Vaisyas, the Sudras etc. lived together in cities and all of these, in their own way, helped in building and developing cities.
- Contacts with outside world, administrative unity, growth of cities, coinage system, etc. helped in the growth of trade and industries which increased the prosperity of India.
- During the rule of the Turks, Persian was accepted as the court language. Therefore, both the Hindus and the Muslims studied it which helped in integrating the culture of both.
- The Turkish rule attacked severely the caste-system of the Hindus. Of course, the caste-system could not be banished from among the Hindus, yet caste-distinctions and untouchability received setbacks and lower castes got protection of the state.

46. Answer C

Explanation->

Fatehpur Sikri is a planned city lovingly constructed by Emperor Akbar in 1571. The imperial capital thrived for 14 years and was abandoned when Akbar moved to Lahore. It soon became a ghost town. Water shortage is an explanation provided by some for the city's abandonment.

Fatehpur Sikri is a planned city lovingly constructed by Emperor Akbar in 1571. The imperial capital thrived for 14 years and was abandoned when Akbar moved to Lahore. It soon became a ghost town. Water shortage is an explanation provided by some for the city's abandonment.

Why did Akbar choose Fatehpur Sikri, a non-descript town 36 km from Agra, as his Imperial capital? Read on to find out. Legend has it that Akbar had three wives but no male heir to his throne. Bleak, he walked bare feet to Sufi saint Salim Chishti's tomb at Sikri to plead for a son. His wish was granted, and the emperor was blessed with a son who he named Salim (More popularly known as Jahangir) after the Sufi saint. Akbar then built a new citadel at Sikri as a tribute to the saint.

47. Answer A**Explanation->**

The government that existed in the provinces was called the **Nayankara system**. It was equivalent to that of European feudalism.

All the land, as per the scheme, was owned by the rulers. He assigned the land to his generals. They functioned and behaved as feudal lords under his influence.

During the time of the Vijayanagar rulers, this administrative structure grew. Most of the land was allocated among the Nayaks depending on the theory. For their defence, they existed with pomp and show and built forts. They acknowledged the Vijayanagar rulers dominance and served as their guardians.

48. Answer B**Explanation->**

Dholavira's water management system consisted of a sophisticated water network system of channels and reservoirs, the earliest found anywhere in the world, built completely of stone. The kind of efficient system developed for conservation, harvesting, and storage of water speaks eloquently about their advanced hydraulic engineering.

49. Answer C**Explanation->**

the world of *Buddhist eschatology*, **Maitreya** literally means *the future Buddha*. **Maitreya Buddha** is considered as the *5th Buddha* that is believed to appear in this Kalpa or era. Thus, *Maitreya Buddha* is considered as **the Future Buddha** that is yet to appear in this age. In the form of White Horse. In various *Buddhist sutra* such as **Amitabha Sutra**, as well as **Lotus Sutra**, **Maitreya Buddha** is believed to be called as **Ajita**.

50. Answer B

Explanation->

In 2015, the BJP-led government of Haryana set up a 'Saraswati Rejuvenation' team to excavate farmlands where the mighty river once flowed. They actually found water at seven feet. The project was first started in 2003. It was shelved and restarted in 2015.

In the DownToEarth report, scientists believed that the river died a premature death, but it flows underground in many parts. A map of all channels summarises that the Saraswati River flowed through present-day Haryana, Punjab, Himachal Pradesh and Rajasthan.

American Satellite Landsat shared digital photographs that showed the presence of the river and definitive patterns under the ground of the Jaisalmer area.

51. Answer A**Explanation->**

Vasavadutta who is the Queen of Udayan who is the reigning king. She is in hiding and is being aided by Yugandaryana who is a chief minister in the government of Vastis. The queen and the chief minister are at a hermitage where several people visit them. After numerous impediments the King and Queen united.

52. Answer C**Explanation->**

Bimbisara, (born c. 543—died 491 bce), one of the early kings of the Indian kingdom of Magadha. His expansion of the kingdom, especially his annexation of the kingdom of Anga to the east, is considered to have laid the foundations for the later expansion of the Mauryan empire. He patronized Mahavira.

53. Answer A**Explanation->**

Vishti was forced labour in lieu of tax and therefore not entitled to weekly wages. Anyone can be sent as the forced labourer, not particularly from the eldest son of the labourer.

Existed as a State revenue from Mauryan to Guptan age. Most of the inscriptions refers to Vishti as more prevalent in the Madhya Pradesh and Kathiawar regions of the Gupta Empire.

54. Answer A**Explanation->**

The reason for making this record is to understand the society and the strict traditions of the Gaddi tribe in Himachal Pradesh. About 17 towns from two locally improved neighborhoods in the Chamba region of Himachal Pradesh were consulted. These towns are Bhalai, Bhattiyat, Bharmaur, Chamba, Chaurah, Dalhousie, Holi, Pangi, Saluni, Sihunta, Tikri, Chamrauli, Bassa, Kuarsi, Chaned, Chhtarari, and Bhanauta of Chamba block. The envisaged Gaddi tribe may be a semi-immigrant tribe located in Himachal Pradesh and the high Himalayas of Himachal Pradesh. These tribes mainly live in the regions around the Dhauladhar, Chamba, Bharmaur, and Dharamshala mountains.

55. Answer D

Explanation->

Vijayanagara temples are usually surrounded by a strong enclosure. Small shrines consist simply of a garbhagriha (sanctum) and a porch. Medium-sized temples have a garbhagriha, shukanasi (antechamber), a navaranga (antrala) connecting the sanctum and outer mandapa (hall), and a rangamantapa (enclosed pillared hall).

56. Answer C**Explanation->**

The Ajanta Caves follow the Cathedral-style architecture found in still older rock-cut cave carvings of ancient India, such as the Lomas Rishi Cave of the Ajivikas near Gaya in Bihar dated to the 3rd century BCE. These chaitya-griha are called worship or prayer halls.

Ellora, with its uninterrupted sequence of monuments dating from A.D. 600 to 1000, brings the civilization of ancient India to life. Not only is the Ellora complex a unique artistic creation and a technological exploit but, with its sanctuaries devoted to Buddhism, Hinduism and Jainism, it illustrates the spirit of tolerance that was characteristic of ancient India.

57. Answer A

- Union Agriculture Minister chaired the first steering committee meeting of the National Natural Farming Mission
- Natural Farming is a chemical-free alias traditional farming method. It is considered as agroecology-based diversified farming system which integrates crops, trees and livestock with functional biodiversity.
- In India, Natural farming is promoted as BharatiyaPrakritik Krishi PaddhatiProgramme (BPKP) under a centrally sponsored scheme- Paramparagat Krishi Vikas Yojana (PKVY).
- Gujarat has the largest area under Natural Farming (31.1%), followed by Andhra Pradesh (28.8%) and Madhya Pradesh (11%).

58. Answer D

- Agricultural and Processed Food Products Export Development Authority (APEDA) intends to achieve this by exporting value-added and processed organic millet products to at least 100 countries. APEDA aims to raise millets export to ₹2,000 cr by FY26.
- Millets are gluten-free and can be consumed by celiac disease patients.
- Millets are highly adaptive to a wide range of ecological conditions and thrive well in rain-fed; arid climates and they have minimal requirements of water, fertilizers, and pesticides.
- Millets have a low Glycemic Index (GI) and are also associated with the prevention of diabetes.

59. Answer B

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 in Basel, Switzerland.

Environmental regulations in the industrialized world in the 1970s and 1980s had led to increasing public resistance to the disposal of hazardous wastes – in accordance with what became known as the NIMBY (Not In My Back Yard) syndrome – and to an escalation of disposal costs. This in turn led some operators to seek cheap disposal options for hazardous wastes in Eastern Europe and the developing world, where environmental awareness was much less developed and regulations and enforcement mechanisms were lacking. It was against this background that the Basel Convention was negotiated in the late 1980s, and its thrust at the time of its adoption was to combat the “toxic trade”, as it was termed. The Convention entered into force in 1992.

60. Answer B

The UN Environment Programme (UNEP) has launched a Green Economy Initiative, which seeks to respond to the global economic downturn by focusing on economic growth and job creation in environmental industries in 2008, in London, funded by the European Commission, Germany and Norway. It builds on the G8+5 study on the Economics of Ecosystems and Biodiversity (TEEB), which emphasized the economic implications of ecosystem degradation and biodiversity loss, as well as their link to poverty. The US\$4 million Green Economy Initiative will look to clean and rural energy and technologies, sustainable agriculture, ecosystem infrastructure, reduced emissions from deforestation and forest degradation, and sustainable cities to promote its priorities, which include valuing and mainstreaming nature’s services, generating employment through green jobs and policy, and accelerating the transition to a green economy via instruments and market signals.

61. Answer B

62. Answer B

- A territory is a geographical area that an individual marks and defends. A territory can be marked out using movements (displays), sound (calling), or smell (scent). However, it costs time and energy to defend a territory. For this reason, territories are relatively small and some organisms will only defend their territory during mating season.
- This is the wider geographical area that an animal will seldom leave (unless they migrate in order to breed elsewhere). An animal’s home range is usually much larger than its territory. Unlike territories, a home range is not actively defended and home ranges may overlap.

63. Answer C

- The topmost zone near the shore of a lake or pond is the littoral zone. This zone is the warmest since it is shallow and can absorb more of the Sun's heat. It sustains a fairly diverse community which can include several species of algae (like diatoms), rooted and floating aquatic plants, grazing snails, clams, insects, crustaceans, fishes, and amphibians.

- The near-surface open water surrounded by the littoral zone is the limnetic zone. The limnetic zone is well lighted (like the littoral zone) and is dominated by plankton both phytoplankton and zooplankton. The deep-water part of the lake or pond is called the profundal zone. This zone is much colder and dense than the other two. Little light penetrates all the way through the limnetic zone into the profundal zone. Only respiration activity takes place in this zone. Also known as aphotic zone.
- The fauna are heterotrophs, meaning that they eat dead organisms and use oxygen for cellular respiration. Nektons are animals which are swimmer. They are relatively large and powerful as they have to overcome the water currents. Floating plants are called as neuston. These are unattached organisms which live at the air water interface.

64. **Answer D**

65. **Answer B**

- Seagrasses are underwater plants that evolved from land plants. They are like terrestrial plants in that they have leaves, flowers, seeds, roots, and connective tissues, and they make their food through photosynthesis.
- Seagrasses occur all along the coastal areas of India. They are abundant in the Palk Strait and Gulf of Mannar in Tamil Nadu.

66. **Answer A**

The World Economic Forum recently published the report named “BiodiverCities by 2030: Transforming cities” which studies the cities’ relationship with nature. The report is a product of the initiative named “BiodiverCities by 2030” which is a joint initiative of the World Economic Forum and the Alexander von Humboldt Institute, championed by the Government of Colombia. This initiative aims to support city governments, businesses and citizens, to enable cities to live in harmony with nature by 2030. This report builds on the work of the World Economic Forum’s New Nature Economy Report series, which identified nature-related economic risks (affecting more than half the world’s GDP) and opportunities from nature-positive pathways, including an increase in business value by \$10.1 trillion and the creation of 395 million jobs by 2030. BiodiverCities can restore the balance between cities and nature by improving urban governance models to support by mainstreaming biodiversity data in a decision-making and adopting a systems approach to urban governance.

67. **Answer A**

- The taiga is a forest of the cold, subarctic region. The subarctic is an area of the Northern Hemisphere that lies just south of the Arctic Circle. The taiga lies between the tundra to the north and temperate forests to the south. The taiga is nowhere in the southern hemisphere, since there is no mass of mainland at the appropriate latitudes. In the northern hemisphere, instead, the taiga forms an uninterrupted belt all around the world, from Scandinavia to Asian Siberia and Canada.

- Taigas are thick forests. Coniferous trees, such as spruce, pine, and fir, are common.
 - Coniferous trees have needles instead of broad leaves, and their seeds grow inside protective, woody cones. While deciduous trees of temperate forests lose their leaves in winter, conifers never lose their needles. For this reason, conifers are also called “evergreens.”
- Few large carnivorous animals live in the taiga. Bears and lynx are fairly common. The largest cat in the world, the 300-kilogram (660-pound) Siberian tiger, is a native taiga species. Siberian tigers live in a small part of eastern Siberia. They hunt moose and wild boars.

68. Answer B

- As per IUCN definition, a hope spot is an area of an ocean that needs special protection because of its wildlife and significant underwater habitats.
- Mission Blue has partnered with the International Union for Conservation of Nature (IUCN) and receives support from National Geographic, Rolex, and Google. Hope Spot Network is a joint initiative of Mission Blue and International Union Of Conservation of Nature (IUCN).
- Currently, there are a total of 76 Hope Spots around the world. Andaman and Nicobar Islands and Lakshadweep islands have recently been named as the new "hope spots" from India. In Lakshadweep group of islands, Pitti (0.01 square kilometre) is the only island that has marine protected areas (MPA) tag.

69. Answer B

- Kaziranga National Park is a national park in the Golaghat and Nagaon districts of the state of Assam, India. It is situated on the southern bank of the Brahmaputra River at the foot of the Mikir - Karbi Anglang Hills about 8 km from Bokakhat and 220 km east of Guwahati.
- Nameri National Park covers an area of 200 sq Km. With river Jia Bhoroli bifurcating the park, it is the most scenic of all the national parks of Assam. It is located to the north of the river Brahmaputra.
- Orang National park
 - It is located on the north bank of the Brahmaputra River in the Darrang and Sonitpur districts of Assam, India.

70. Answer D

Plastic Waste Management Rules, 2016 (as amended in 2018 and 2021):

- Rural areas have been brought into ambit of these Rules since plastic has reached to rural areas also. Responsibility for implementation of the rules is given to Gram Panchayat.
- Individual and bulk generators like offices, commercial establishments, industries are to segregate the plastic waste at source, handover segregated waste, pay user fee as per bye-laws of the local bodies.
- No person shall manufacture carry bags or recycle plastic bags or multilayered packaging unless the person has obtained a registration from the State Pollution Control Board or the Pollution Control Committee of the Union Territory concerned, as the case may be, prior to the commencement of production.

□ In order to stop littering due to lightweight plastic carry bags, the thickness of plastic carry bags has been increased to one hundred and twenty microns with effect from the 31st December 2022. This will also allow the reuse of plastic carry bags due to increase in thickness.

o For effective implementation of Extended Producer Responsibility, the Guidelines for Extended Producer Responsibility being brought out have been given legal force through Plastic Waste Management Amendment Rules, 2021

71. Answer B

□ Radioactive contamination occurs when radioactive material is deposited on or in an object or a person. Such contamination presents a hazard because the radioactive

decay of the contaminants produces ionizing radiation (namely alpha, beta, gamma rays and free neutrons).

□ Various treatment methods like **aeration, reverse osmosis, ion exchange and granule carbon adsorption** are effective remedial measures for treating radioactively contaminated water. UV radiation can only kill micro organisms

72. Answer C

- The COP26 of UNFCCC in Glasgow promoted discussions on climate change issues and solutions that resulted in the Glasgow Climate Pact, including commitments to strengthen efforts to build climate resilience and curb the emission of greenhouse gases.
- □ Based on such deliberations of CoP26, India's Prime Minister announced India's Panchamrit to accelerate the energy transition in India. Furthermore, under the International Solar Alliance, India announced the launch of the Green Grids Initiative — One Sun, One World, One Grid (GGI-OSOWOG) . This project aspires to harness the sun's energy and build a global interconnected electricity grid to accelerate the transition to renewable energy.
- □ The initiative is expected to connect more than 80 countries across a large geographical area, with varying levels of sunlight. A transitional system will enable

73. Answer C

- Black carbon (BC) is a component of fine particulate matter. Black carbon consists of pure carbon in several linked forms. It is formed through the incomplete combustion of fossil fuels, biofuel, and biomass, and is emitted in both anthropogenic and naturally occurring soot. Black carbon particles vary in size and can be much smaller than PM_{2.5} and as small as PM_{0.1}. The atmospheric residence time for black
- carbon emissions from different regions varies between 4.6 to 7.3 days — in other words, it stays in the air for a period of days to weeks instead of more than a hundred years, as is the case with CO₂.

- When soot settles on snow and ice, it makes the surface darker, so the surface absorbs more sunlight and generates heat. This warming causes more
- snow and ice to melt. But black carbon that hangs above low-lying clouds has a different effect. It stabilizes the layer of air on top of the clouds, promoting their growth. These clouds are like shields, blocking incoming sunlight. As a result, black carbon also ends up cooling the planet.

74. Answer B

- Under the plan scheme “Metropolitan Advisories for Cities for Sports, Tourism (Metropolitan Air Quality and Weather Services), Ministry of Earth Sciences (MoES), Govt. of India, has introduced a major national initiative, "System of Air Quality and Weather Forecasting and Research" known as "SAFAR".
- It is for greater metropolitan cities of India to provide location specific information on air quality in near real time and its forecast 1-3 days in advance for the first time in India. It has been combined with the early warning system on weather parameters.
- The SAFAR system is developed indigenously by Indian Institute of Tropical Meteorology, Pune, along with ESSO partner institutions namely India Meteorological Department (IMD) and National Centre for Medium Range Weather Forecasting (NCMRWF).

75. Answer C

- The Climate Ambition Alliance brings together countries, businesses, investors, cities, and regions that are working towards achieving net-zero CO₂ emissions by 2050. Country engagement in this Alliance is led by the governments of Chile and the United Kingdom, with support from UN Climate Change and UNDP.
- All efforts of the alliance aim to accelerate the necessary transformation to reach the goals of the Paris Agreement and stabilize the global temperature rise to 1.5°C. All members of the alliance are committed to the goal of achieving carbon neutrality by 2050.
- □ India is the world's fourth biggest emitter of carbon dioxide after China, the US, and the EU. India has promised to cut its emissions to net zero by 2070 - missing a key goal of the COP26 Glasgow summit for countries to commit to reaching that target by 2050. So India has opted out of the alliance.

76. Answer A

- Every waste generator shall segregate and store the waste generated by them in three separate streams namely biodegradable, non biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the local authorities from time to time
- Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either or

through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel. High calorific wastes shall be used for co-processing in cement or thermal power plants.

77. **Answer C**

78. **Answer B**

79. **Answer B**

80. **Answer C**

81. **Answer C**

82. **Answer A**

83. **Answer A**

84. **Answer C**

85. **Answer C**

86. **Answer A**

87. **Answer D**

As of December 2022, Forex Reserves stood at US\$ 563 bn covering 9.3 months of imports. As of end-November 2022, India is the sixth largest foreign exchange reserves holder in the world. The current stock of external debt is well shielded by the comfortable level of foreign exchange reserves.

88. **Answer D**

India is third largest economy in PPP (purchasing power parity) terms, fifth largest in terms of exchange rate. The Minimum Support Price for all mandated crops is set at 1.5 times the weighted average cost of production in India.

89. **Answer B**

90. **Answer B**

Ministry of jal shakti has launched a unified portal on the government's 'Gobardhan' scheme. The scheme aims to augment the income of farmers by converting biodegradable waste into compressed biogas (CBG)

91. **Answer C**

Heat domes Why in News?

Several countries in Europe recorded their hottest January weather ever in 2023 with temperatures 10 to 20 degrees Celsius above average. These included Poland, Denmark, the Czech Republic, the Netherlands, Belarus, Lithuania and Latvia. Experts said that the continent is experiencing an extremely warm spell because of the formation of a heat dome over the region.

In 2021, a heat dome formed over western Canada and the US, causing deadly heat waves. Another heat dome settled over the US in September 2022 and raised temperatures to a new high.

What is a Heat Dome and Heat Wave?

A heat dome occurs when an area of high-pressure traps warm air over a region, just like a lid on a pot, for an extended period of time. The longer that air remains trapped, the more the sun works to heat the air, producing warmer conditions. Heat domes generally stay for a few days but sometimes they can extend up to weeks, which might cause deadly heat waves.

Scientists suggest that any region of high pressure, whether a heat dome or not, forces air to sink and once it reaches the ground, it gets compressed and becomes

even warmer. Moreover, when air sinks, it gets drier and further raises the temperature of the area.

Heat Domes and the Jet Stream:

The heat dome's formation is related to the behaviour of the jet stream. Jet streams are relatively narrow bands of strong wind in the upper levels of the atmosphere. The jet stream is believed to have a wave-like pattern that keeps moving from north to south and then north again. This is when a high-pressure system gets stuck and leads to the occurrence of a heat dome. **Although heat domes are likely to have always existed, researchers say that climate change may be making them more intense and longer.**

What are the Causes of Formation of Heat Dome?

Change in Ocean Temperature: The phenomenon begins when there is a strong change (or gradient) in ocean temperatures.

In the process known as convection, the gradient causes more warm air, heated by the ocean surface, to rise over the ocean surface.

As prevailing winds move the hot air east, the northern shifts of the jet stream trap the air and move it toward land, where it sinks, resulting in heat waves.

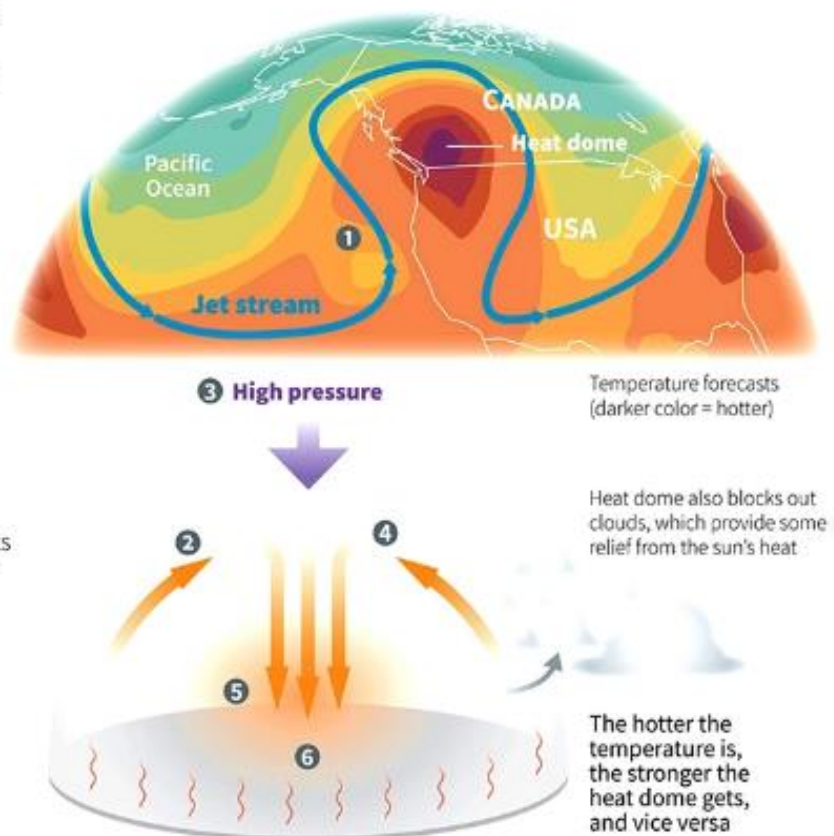
Change in Atmospheric Pressure: Heat waves begin when high pressure in the atmosphere moves in and pushes warm air toward the ground. This effect is fuelled by heat rising from the ocean, creating an amplification loop.

Climate Change: The rising temperatures lead to hotter weather. Heat waves have been a regular phenomenon on land. However, global warming has caused them to be hotter with a longer duration and an increased frequency.

The 'heat dome'

Occurs when the atmosphere traps hot ocean air like a lid or cap

- 1 In summer, the **jet stream** (which moves the air) shifts northward
- 2 **Hot** and stagnant air expands upwards
- 3 Strong and **high-pressure** atmospheric conditions combine with influences from La Nina act like a dome or cap
- 4 In a process known as **convection**, hot air attempts to escape but high pressure pushes it back down
- 5 Under the dome, the air sinks and **compresses**, releasing more heat
- 6 As winds move the hot air east, the jet stream traps the air where it sinks, resulting in **heat waves**



92. Answer A

Explanation:

1. **WD is associated with rainfall, snowfall and fog in northern India**
2. **The moisture which Western disturbances carry with them comes from the Mediterranean Sea and the Atlantic Ocean**
3. **Western disturbances can cause extreme weather events like floods, flash floods, landslides, dust storms, hail storms and cold waves.**
4. **Western disturbances travel eastwards on high-altitude subtropical westerly jet streams**
5. **Only drinking water source of Iran is the rain due to western disturbances.**
6. **Western disturbances are peak during winter months and minimal effects during monsoon months(summer)**
7. **Recently, the daytime's temperatures in Delhi were above normal in December 2022 because of fewer Western Disturbances (WD).**

In winter, WD brings rain and snow over the hills, and more moisture to the plains. The cloud cover results in higher minimum temperatures at night and lower day-time or maximum temperatures.

What are Western Disturbances? Western disturbances are storms that originate in the Caspian or Mediterranean Sea, and bring non-monsoonal rainfall to northwest India, according to the India Meteorological Department (IMD).

A Western Disturbance, labelled as **an extra-tropical storm** originating in the Mediterranean, is an area of low pressure that brings **sudden showers, snow and fog** in northwest India. These travel eastwards on **high-altitude westerly jet streams** - massive ribbons of fast winds traversing the earth from west to east. They gradually travel across the middle-east from Iran, Afghanistan and Pakistan to enter the Indian sub-continent.

Impact in India: A WD is associated with rainfall, snowfall and fog in northern India. **The moisture** which WDs carry with them comes from the **Mediterranean Sea and/or from the Atlantic Ocean**.

WD brings winter and pre-monsoon rain and is important **for the development of the Rabi crop** in the Northern subcontinent.

Sometimes WDs can cause extreme weather events like **floods, flash floods, landslides, dust storms, hail storms and cold waves** killing people, destroying infrastructure and impacting livelihoods.

During the summer months of April and May, they move across North India and at times help in the activation of monsoon in certain parts of northwest India.

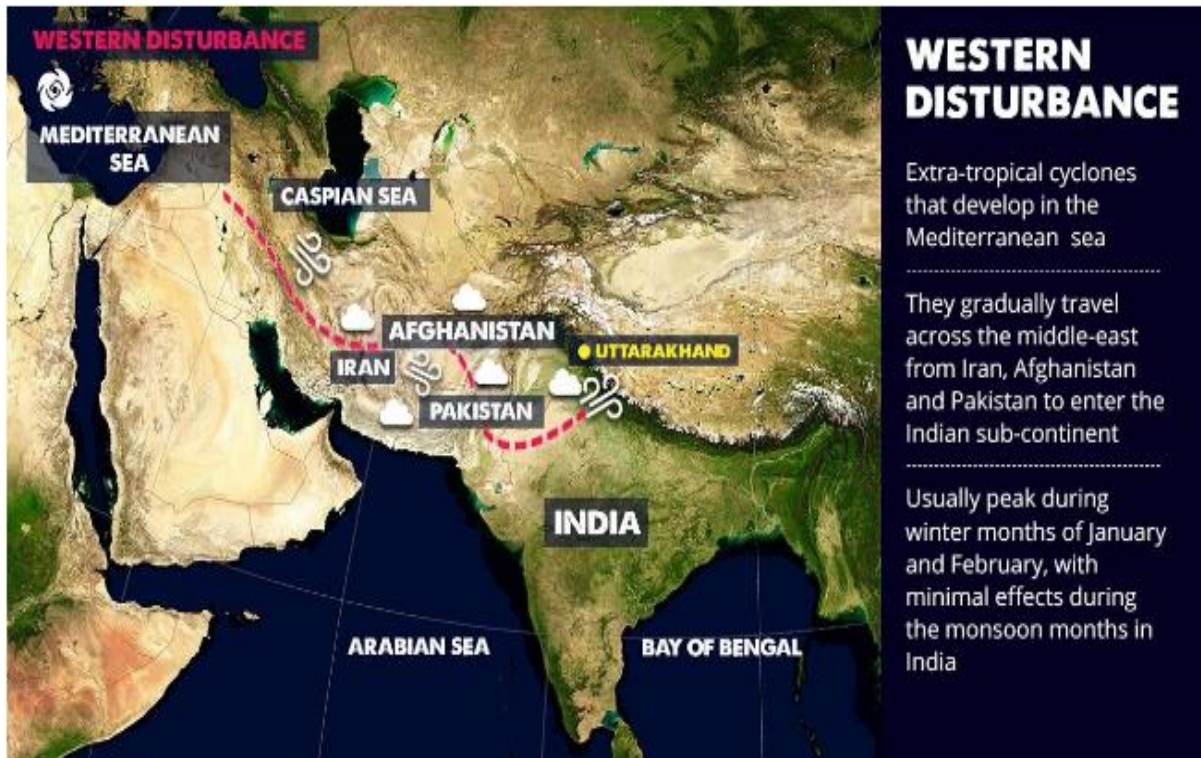
During the monsoon season, western disturbances may occasionally cause dense clouding and heavy precipitation. Weak western disturbances are associated with crop failure and water problems across north India.

What have been the Recent Instances/Impact of WD?

Excess rainfall was recorded in January and February 2022. In contrast, there was no rainfall in November 2021 and March 2022, and the summer saw an unusually early start with heat waves setting in at the end of March 2022.

Multiple western disturbances that brought cloud cover had also kept the maximum temperature low in February 2022, when the lowest maximum temperature in 19 years was recorded.

Active western disturbances eluded northwest India in March 2022, and absence of cloud cover and rain allowed temperatures to remain high. **The frequency of western disturbances has increased, but not the precipitation associated with them, partly due to a warming atmosphere (Global Warming).**



What have been the Recent Instances/Impact of WD?

Excess rainfall was recorded in January and February 2022. In contrast, there was no rainfall in November 2021 and March 2022, and **the summer saw an unusually early start with heat waves** setting in at the end of March 2022.

Multiple western disturbances that brought cloud cover had also kept the maximum temperature low in February 2022, when the lowest maximum temperature in 19 years was recorded.

Active western disturbances eluded northwest India in March 2022, and absence of cloud cover and rain allowed temperatures to remain high.

The frequency of western disturbances has increased, but not the precipitation associated with them, partly due to a warming atmosphere (Global Warming).

In 2021, western disturbances brought rain to Delhi in the first week of December. Delhi is, however, likely to get colder with the maximum temperature likely to fall to around 24 degrees by December 15, 2022.

93. Answer D

Cyclone Mandous: Cyclone Mandous is expected to reach south-west Bay of Bengal, off north Tamil Nadu-Puducherry and adjoining south Andhra Pradesh coasts by December 8, as per a statement issued by National Crisis Management Committee (NCMC).

It will continue to move west-northwestwards towards north Tamil Nadu-Puducherry and adjoining south Andhra Pradesh coasts during the subsequent 48 hours.

Cyclone Yaas:The India Meteorological Department (IMD) has informed that a low-pressure area is formed over the north Andaman Sea and adjoining east-central Bay of Bengal around May 22.

It is likely to intensify into a cyclonic storm by May 24. It has been named Cyclone Yaas.

The name 'Yaas' was suggested by Oman and refers to a tree with a good fragrance and in English, the word is similar to Jasmine.

Cyclone Karim –originated in the southern hemisphere.

- Karim has been classified as a category II hurricane, with a wind speed of 112 kilometres per hour (kmph).
- “Asani remains a Severe Cyclonic Storm over the Bay of Bengal, with wind speeds of 100-110 kmph gusting to 120 kmph,” the Weather Channel said.
- Both were formed in the Indian Ocean region.
- Both cyclones originated in the same longitude and now drifting apart.
- Cyclone Karim has created a path in the open seas west of Australia.
- The name Karim was given by the South African country Seychelles

The cyclone Asani seems to be carrying thunderstorms for the eastern coast of India which includes West Bengal, Odisha, etc.

- Meteorologists have predicted that the cyclone will move towards the north.
- The name of the cyclone has been given by Sri Lanka and “Ashani” translates to “Wrath” in the Sinhala language.

94. Answer D

Explanation:

RARE EARTH MINERALS

Amid India's reliance on China for rare earth minerals imports, the Confederation of Indian Industry (CII) has urged the government to encourage private mining in the sector and diversify supply sources.

India has 6% of the world's rare earth reserves, it only produces 1% of global output, and meets most of its requirements of such minerals from China. In 2018-19, for instance, 92% of rare earth metal imports by value and 97% by quantity were sourced from China.

What are the Suggestions of CII?

CII suggested that an '**India Rare Earths Mission**' be set up manned by professionals, similar to the **India Semiconductor Mission**, as a critical component of the **Deep Ocean Mission**.

The industry group has also mooted making rare earth minerals a part of the '**Make In India**' campaign, citing **China's 'Made in China 2025'** initiative that focuses on new materials, including permanent magnets that are made using rare earth minerals.

What are Rare Earth Metals?

They are a set of **seventeen metallic elements**. These include the fifteen lanthanides on the periodic table in addition to scandium and yttrium that show similar physical and chemical properties to the lanthanides.

The 17 Rare Earths are cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).

These minerals have unique magnetic, luminescent, and electrochemical properties and thus are used in many modern technologies, including consumer electronics, computers and networks, communications, health care, national defense, clean energy technologies etc.

For example, high-temperature superconductivity, safe storage and transport of hydrogen for a post-hydrocarbon economy etc.

They are called '**rare earth**' because **earlier it was difficult to extract them from their oxides forms technologically**.

They occur in many minerals but typically in low concentrations to be refined in an economical manner.

How China Monopolised Rare Earths?

China has over time acquired global domination of rare earths, even at one point, it produced 90% of the rare earths the world needs. Today, however, it has come down to 60% and the remaining is produced by other countries, including the Quad (Australia, India, Japan and United States).

Since 2010, when **China curbed shipments of Rare Earths to Japan, the US, and Europe**, production units have come up in Australia, and the US along with smaller units in Asia, Africa, and Latin America. Even so, the dominant share of processed Rare Earths lies with China.

What is India's Current Policy on Rare Earths?

Exploration in India has been conducted by the **Bureau of Mines and the Department of Atomic Energy**. Mining and processing has been performed by some minor private players in the past, but is today concentrated in the hands of **IREL (India) Limited** (formerly Indian Rare Earths Limited), a Public Sector Undertaking under the Department of Atomic Energy.

India has granted government corporations such as IREL a monopoly over the primary mineral that contains REEs: monazite beach sand, found in many coastal states.

IREL produces rare earth oxides (low-cost, low-reward “upstream processes”), selling these to foreign firms that extract the metals and manufacture end products (high-cost, high-reward “downstream processes”) elsewhere.

IREL's focus is to provide thorium — extracted from monazite — to the Department of Atomic Energy.

What are the Related Steps taken Globally?

The **Multilateral Minerals Security Partnership (MSP)** was announced in June 2022, with the goal of bringing together countries to build robust critical minerals supply chains needed for climate objectives.

Involved in this partnership are the United States (US), Canada, Australia, Republic of Korea, Japan, and various European countries.

India is not included in the partnership.

By India: Ministry of Mines has amended **Mines and Minerals (Development and Regulation) (MMDR) Act, 1957** through the **Mines and Minerals (Development and Regulation) Amendment Act, 2021** for giving boost to mineral production, improving ease of doing business in the country and increasing contribution of mineral production to Gross Domestic Product (GDP).

95. Answer. B

Explanation: Recently, geologists have suggested to protect the site of **Coastal Red Sand Dunes**, of Visakhapatnam, Andhra Pradesh.

What are the Key Points of the Sites?

The **Coastal Red Sand Dunes** is also known as 'Erra Matti Dibbalu'. It is one of the many sites of Visakhapatnam, which have geological importance.

The site is located along the coast and is about 20 km north-east of Visakhapatnam city and about 4 km south-west of Bheemunipatnam.

This site was declared as a geo-heritage site by the Geological Survey of India (GSI) in 2014 and the Andhra Pradesh government has listed it under the category of 'protected sites' in 2016.

Distribution:

Such sand deposits are rare and have been reported only from three places in the tropical regions in south Asia such as **Teri Sands in Tamil Nadu, Erra Matti Dibbalu in Visakhapatnam** and one more site in Sri Lanka. They do not occur in equatorial regions or temperate regions due to many scientific reasons.

What is the Uniqueness of these Sediments?

Continuous Evolution: The red sediments are a part of the continuation of the evolution of the earth and represent the late quaternary geologic age (about 2.6 million years ago)

Different Geomorphic Features: With a height of up to 30 m, they exhibit badland topography with different geomorphic landforms and features, including gullies, sand dunes, buried channels,

Geochemically Unaltered:

The top light-yellow sand unit, which is estimated to have been deposited around 3,000 years ago, could not attain the red colouration as the sediments were geochemically unaltered.

These sediments are **unfossiliferous (not containing fossils)** and deposited over the **khondalite basement**. Khondalite is a regional rock with high-grade metamorphism and granulite rock formation. It was named after the Khond tribe of Odisha.

What is the Significance of Protecting this Site?

It is significant to protect this site, because its study can help understand the impact of climate change, as Erra Matti Dibbalu has seen both the glacial and the warm periods. The site is about 18,500 to 20,000 years old and it can be related to the last glacial period.

It is a **lively scientific evolution site**, which depicts the real-time effects of climate change.

About 18,500 years ago, the sea (Bay of Bengal) was at least 5 km behind from the present coastline. Since then, it has been undergoing continuous active changes till about 3,000 years ago and still the changes are on.

The site also has archaeological significance, as studies of artifacts indicate an Upper Palaeolithic horizon and on cross dating assigned to Late Pleistocene epoch, which is 20,000 BC.

The site was home to the pre-historic man as the excavations at several places in the region revealed stone implements of three distinctive periods and also the pottery of the Neolithic man.

96. Answer: D

A recent study by a team of scientists at Goa-based National Centre for Polar and Ocean Research (NCPOR) has brought new insights into the critical processes involved in the movement of the earth's tectonic plates.

Scientists studied samples of igneous rocks collected from near **the Ninety East Ridge** in the Indian Ocean during an expedition under the **International Ocean Discovery Program (IODP)**.

The **Ninety East Ridge is an aseismic ridge** located almost parallel to 90 degrees east longitude in the Indian Ocean. It is approximately 5,000 km in length and has an average width of 200 km.

Igneous rock, or magmatic rock, is one of the three main rock types. It is formed through the cooling and solidification of magma or lava.

Investigation revealed that some **basaltic samples** were **highly alkaline** and had very similar composition to those released by **the Kerguelen hotspot** (volcanic hotspot at the Kerguelen Plateau in the Southern Indian Ocean).

In addition, **the minimum age of alkaline samples was about 58 million years**, much younger than the adjacent oceanic crust surrounding Ninety East Ridge (around 82-78 million years old)

97 Answer: C

Recently, the Cabinet Committee on Economic Affairs has approved the proposal of the Ministry of Earth Sciences (MoES) on the Deep Ocean Mission (DOM). The blueprint of the DOM to explore the deep resources of the ocean was unveiled in 2018. Earlier, MoES had also rolled out the draft Blue Economy Policy.

The cost of the Mission has been estimated at Rs. 4,077 crore over a five-year period and will be implemented in phases. MoES will be the nodal ministry implementing this multi-institutional ambitious mission.

It will be a **mission mode project to support the Blue Economy Initiatives** of the Government of India.

Blue Economy is the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The technology and expertise needed in such missions is now available with only five countries - US, Russia, France, Japan and China. **India will now be the sixth country to have it.**

Major Components:

Development of Technologies **for Deep Sea Mining, and Manned Submersible:**

An **Integrated Mining System** will be also developed for mining polymetallic nodules at those depths in the central Indian Ocean. **Polymetallic nodules** are rocks scattered on the seabed containing iron, manganese, nickel and cobalt.

Development of Ocean Climate Change Advisory Services:

Technological Innovations for Exploration and Conservation of Deep-sea Biodiversity:

Bio-prospecting of deep sea flora and fauna including microbes and studies on sustainable utilization of deep sea bio-resources will be the main focus.

Deep Ocean Survey and Exploration: It will explore and identify potential sites of multi-metal Hydrothermal Sulphides mineralization along the Indian Ocean mid-oceanic ridges.

Energy and Freshwater from the Ocean:

Studies and detailed engineering design for offshore **Ocean Thermal Energy Conversion (OTEC)** powered **desalination plants** are envisaged in this proof of concept proposal.

OTEC is a technology which uses ocean temperature differences from the surface to depths lower than 1,000 meters, to extract energy.

Advanced Marine Station for Ocean Biology:

It is aimed at the development of human capacity and enterprise in ocean biology and engineering.

It will translate research into industrial application and product development through on-site business incubator facilities.

Significance:

Three sides of India are surrounded by the oceans and around **30% of the country's population** living in coastal areas, the ocean is a major economic factor supporting fisheries and aquaculture, tourism, livelihoods and blue trade.

India has a unique maritime position. **Its 7517 km long coastline** is home to nine coastal states and 1382 islands.

The Government of **India's Vision of New India by 2030** announced in February 2019 highlighted the **Blue Economy as one of the ten core dimensions of growth.**

Considering the importance of the oceans on sustainability, the **UN has declared the decade, 2021-2030 as the Decade of Ocean Science for Sustainable Development.**

Other Blue Economy Initiatives:

India-Norway Task Force on Blue Economy for Sustainable Development :

It was inaugurated jointly by both the countries in 2020 to develop and follow up joint initiatives between the two countries.

Sagarmala Project:

The Sagarmala project is the strategic initiative for port-led development through the extensive use of IT enabled services for modernization of ports.

O-SMART:

India has an umbrella scheme by the name of O-SMART which aims at regulated use of oceans, marine resources for sustainable development.

Integrated Coastal Zone Management:

It focuses on conservation of coastal and marine resources, and improving livelihood opportunities for coastal communities etc.

National Fisheries Policy :

India has a National Fisheries policy for promoting 'Blue Growth Initiative' which focuses on sustainable utilization of fisheries wealth from marine and other aquatic resources.

Explanation:

Andaman and Nicobar islands have fringing reefs and the Lakshadweep Islands are made up of atolls.

Coastal Regulation Zone (CRZ) of 1991 , provides protection to all coral reefs in India

India's first coral garden Mithapur is located in Gulf of Kutch

Coral reefs are found at the Gaveshani Bank located in the west of Mangalore.

99. Answer B

Explanation: Recently, Indian Meteorological Department (IMD) has released the **Aridity Anomaly Outlook (AAO)** Index of July 2022, which says at least 85% of districts face arid conditions across India.

What is the Aridity Anomaly Outlook Index?

The index monitors agricultural drought, a situation when rainfall and soil moisture are inadequate to support healthy crop growth till maturity, causing crop stress.

An anomaly from the normal value signifies a water shortage in these districts that could directly impact agricultural activity.

It is Developed by the India Meteorological Department (IMD).

Characteristics:

A real-time drought index in which water balance is considered.

The Aridity Index (AI) is computed for weekly or two-week periods.

For each period, the actual aridity for the period is compared to the normal aridity for that period.

Negative values indicate a surplus of moisture while positive values indicate moisture stress.

Parameters: Actual evapotranspiration and potential evapotranspiration, which require temperature, wind and solar radiation value

Applications: Impacts of drought in agriculture, especially in the tropics where defined wet and dry seasons are part of the climate regime.

Both winter and summer cropping seasons can be assessed using this method.

What are the Findings?

Only 63 of 756 districts are non-arid, while 660 are facing different degrees of aridity — mild, moderate and severe.

Some 196 districts are in the grip of a 'severe' degree of dryness and 65 of these are in Uttar Pradesh (highest).

Bihar had the second highest number of districts (33) experiencing arid conditions. The state also has a high rainfall deficit of 45%.

Other districts facing 'severe arid' conditions are Jharkhand, Haryana, Madhya Pradesh, Delhi, Telangana, Maharashtra, Andhra Pradesh, Jammu and Kashmir, Punjab, West Bengal, Rajasthan, Karnataka and Tamil Nadu.

The SPI - Standardised Precipitation Index also highlights a persisting rainfall deficit in these areas in the last six months.

Arid conditions have impacted the ongoing kharif sowing, as the area sown under different kharif crops as of July, 2022, was less by 13.26 million hectares compared to the corresponding period in 2021.

What is the Standardised Precipitation Index (SPI)?

The SPI is a widely used index to characterize meteorological drought on a range of timescales. On short timescales, the SPI is closely related to soil moisture, while at longer timescales, the SPI can be related to groundwater and reservoir storage.

The SPI on the Drought Early Warning System (DEWS), a real-time drought monitoring platform managed by the Indian Institute of Technology, Gandhinagar (IIT-G) platform highlights a persisting rainfall deficit in these areas in the last six months.

UP, Jharkhand, Bihar, West Bengal and some parts of the North East are under extreme drought situation and agriculture of these regions might be affected.

100. Answer D

Explanation: Recently, Australia's Bureau of Meteorology (BOM) predicted, that **a third consecutive event of La Nina** could be underway which could lead to unusual weather effects in various countries.

There is an extended period of La Nina in 2022. It is the first time that this has happened since the 1950s when the event started to be recorded. The years 1973-76 and 1998-2001 were consecutive La Nina years.

What is La Nina?

Normal Condition:

In the neutral state (neither El Niño nor La Niña) trade winds blow east to west across the surface of the tropical Pacific Ocean, bringing warm moist air and warmer surface waters towards the western Pacific and keeping the central Pacific Ocean relatively cool.

Warm sea surface temperatures in the western Pacific pump heat and moisture into the atmosphere above. In a process known as atmospheric convection, this warm air rises high into the atmosphere and, if the air is moist enough, causes towering cumulonimbus clouds and rain.

The pattern of air rising in the west and falling in the east with westward moving air at the surface is referred to as the Walker Circulation.

La Nina:

La Nina means the Little Girl in Spanish. It is also sometimes called El Viejo, anti-El Nino, or simply "a cold event." La Nina events represent periods of below-average sea surface temperatures across the east-central Equatorial Pacific.

It is indicated by sea-surface temperature decreased by more than 0.9°F for at least five successive three-month seasons.

La Nina event is observed when the water temperature in the Eastern Pacific gets comparatively colder than normal, as a consequence of which, there is a strong high pressure over the eastern equatorial Pacific.

Impacts:

Europe: La Nina tends to lead to **milder winters in Northern Europe** (especially UK) and colder winters in southern/western Europe leading to snow in the Mediterranean region.

North America: It is continental North America where most of these conditions are felt. The wider effects include:

Stronger winds along the equatorial region, especially in the Pacific.

Favourable conditions for hurricanes in the Caribbean and central Atlantic area.

Greater instances of tornados in various states of the US.

South America: La Nina causes **drought** in the South American countries of **Peru and Ecuador**.

It usually has a **positive impact on the fishing** industry of western South America.

Western Pacific: In the western Pacific, La Nina increases the potential for landfall in those areas most vulnerable to their effects, and especially into continental Asia and China.

It also leads **to heavy floods in Australia**.

There are increased temperatures in Western Pacific, Indian Ocean and off the Somalian coast.