NEXT IAS

PTS (GS): CSE 2026

PTS (जी.एस.): सिविल सेवा परीक्षा 2026

GENERAL STUDIES

Paper-I | Sectional Test-4

Physical Geography of the World, Human Geography and Current Affairs (April 2025)

Test Code: 02043125

DATE : 31/08/2025

Test Booklet Series

B

परीक्षण पुस्तिका अनुक्रम

सामान्य अध्ययन

पेपर-I | सेक्शनल टेस्ट-4

विश्व का भौतिक भूगोल, मानव भूगोल तथा समसामयिक मामले (अप्रैल 2025)

Time Allowed*: *Two Hours ***Maximum Marks: 200***

Before attempting paper please read the instructions given on page no. 2 or 3 carefully and follow them.

समय : दो घण्टे **पूर्णांक : 200**

कृपया प्रश्न-पत्र हल करने से पहले पृष्ठ संख्या 2 अथवा 3 पर दिए गए अनुदेशों को ध्यानपूर्वक पढ़े तथा उनका अनुसरण करें।

DELHI CENTRE:
Vivekananda House
6-B, Pusa Road, Metro Pillar No. 111,
Near Karol Bagh Metro
New Delhi-110060
Phone: 8081300200

DELHI CENTRE:
Tagore House
27-B, Pusa Road, Metro Pillar No. 118,
Near Karol Bagh Metro
New Delhi-110060
Phone: 8081300200

DELHI CENTRE:
Mukherjee Nagar
637, Banda Bahadur Marg,
Mukherjee Nagar, Delhi-110009
Phone: 9311667076

PRAYAGRAJ CENTRE:
31/31 Sardar Patel Marg,
Civil Lines, Prayagraj
Uttar Pradesh-211001
Phone: 9958857757

JAIPUR CENTRE:
Plot No. 6 & 7, 3rd Floor,
Sree Gopal Nagar,
Gopalpura Bypass, Jaipur-302015
Phone: 9358200511

जब तक आपको यह परीक्षण पुस्तिका खोलने को न कहा जाए तब तक न खोलें।

अ नु दे श

1. परीक्षा प्रारम्भ होने के तुरन्त बाद आप इस परीक्षण पुस्तिका की पड़ताल अवश्य कर लें कि इसमें कोई बिना छपा, फटा या छूटा हुआ पृष्ठ अथवा प्रश्नांश आदि **न हो**। यदि ऐसा है, तो इसे सही परीक्षण पुस्तिका से बदल लें।

2. **कृपया ध्यान रखें कि** OMR **उत्तर-पत्रक में उचित स्थान पर रोल नम्बर और परीक्षण पुस्तिका अनुक्रम** A **या** B **को ध्यान से एवं बिना किसी चूक या विसंगति के भरने और कूटबद्ध करने की जिम्मेदारी उम्मीदवार की है। किसी भी प्रकार की चूक/विसंगति की स्थिति में उत्तर-पत्रक निरस्त कर दिया जाएगा।**

3. इस परीक्षण पुस्तिका पर साथ में दिए गए कोष्ठक में आपको अपना अनुक्रमांक लिखना है। परीक्षण पुस्तिका पर और कुछ न लिखें।

4. इस परीक्षण पुस्तिका में **100** प्रश्नांश (प्रश्न) दिए गए हैं। प्रत्येक प्रश्नांश **हिन्दी और अंग्रेज़ी** दोनों में छपा है। प्रत्येक प्रश्नांश में चार प्रत्युत्तर (उत्तर) दिए गए हैं। इनमें से एक प्रत्युत्तर को चुन लें, जिसे आप उत्तर-पत्रक पर अंकित करना चाहते हैं। यदि आपको ऐसा लगे कि एक से अधिक प्रत्युत्तर सही हैं, तो उस प्रत्युत्तर को अंकित करें जो आपको सर्वोत्तम लगे। प्रत्येक प्रश्नांश के लिए **केवल एक** ही प्रत्युत्तर चुनना है।

5. आपको अपने सभी प्रत्युत्तर अलग से दिए गए उत्तर-पत्रक पर ही अंकित करने हैं। उत्तर-पत्रक में दिए गए निर्देश देखें।

6. **सभी** प्रश्नांशों के अंक समान हैं।

7. इससे पहले कि आप परीक्षण पुस्तिका के विभिन्न प्रश्नांशों के प्रत्युत्तर उत्तर-पत्रक पर अंकित करना शुरू करें, आपको प्रवेश प्रमाण-पत्र के साथ प्रेषित अनुदेशों के अनुसार कुछ विवरण उत्तर-पत्रक में देने हैं।

8. आप अपने सभी प्रत्युत्तरों को उत्तर-पत्रक में भरने के बाद तथा परीक्षा के समापन पर **केवल उत्तर-पत्रक** अधीक्षक को सौंप दें। आपको अपने साथ परीक्षण पुस्तिका ले जाने की अनुमति है।

9. कच्चे काम के लिए पत्रक, परीक्षण पुस्तिका के अन्त में संलग्न हैं।

10. **गलत उत्तरों के लिए दण्ड:**

    सभी प्रश्नों में उम्मीदवार द्वारा दिए गए गलत उत्तरों के लिए दण्ड दिया जाएगा।

    (i) प्रत्येक के लिए चार वैकल्पिक उत्तर है। उम्मीदवार द्वारा प्रत्येक के लिए दिए गए एक गलत उत्तर के लिए हेतु नियत किए गए अंकों का एक-तिहाई दण्ड के रूप में काटा जाएगा।

    (ii) यदि कोई उम्मीदवार एक से अधिक उत्तर देता है, तो इसे गलत उत्तर माना जाएगा, यद्यपि दिए गए उत्तरों में से एक उत्तर सही होता है, फिर भी उस के लिए उपर्युक्तानुसार ही उसी तरह का दण्ड दिया जाएगा।

    (iii) यदि उम्मीदवार द्वारा कोई हल नहीं किया जाता है अर्थात् उम्मीदवार द्वारा उत्तर नहीं दिया जाता है, तो उस के लिए कोई दण्ड नहीं दिया जाएगा।

11. **प्रश्नों से संबंधित चुनौती/आपत्ति:** यदि छात्रों को लगता है कि या तो प्रश्न/उत्तरों को संशोधित करने की आवश्यकता है या स्पष्टीकरण की आवश्यकता है, तो वे pts@nextias.com पर ई-मेल कर सकते हैं।

जब तक आपको यह परीक्षण पुस्तिका खोलने को न कहा जाए तब तक न खोलें।

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES ***NOT*** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.

2. **Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A or B carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/kdiscrepancy will render the Answer Sheet liable for rejection.**

3. You have to enter your Roll Number on the Test Booklet in the box provided alongside.

4. This Test Booklet contains **100** items (Questions). Each item is printed in **Hindi** and **English** only. Each item comprises four responses (Answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ***ONLY ONE*** response for each item.

5. You have to mark all your responses ***ONLY*** on the separate answer sheet provided. See directions in the Answer Sheet.

6. ***All*** items carry equal marks.

7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.

8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the invigilator ***only the Answer Sheet.*** You are permitted to take away with you the Test Booklet.

9. Sheets for rough work are appended in the Test Booklet at the end.

10. **Penalty for wrong answers:**

    THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE.

    (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.

    (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.

    (iii) If question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

11. **CHALLENGE THE QUESTION:** If students feel that either the question(s)/kanswer(s) needs to be modified or require clarification, they can email at **pts@nextias.com**

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

1. श्री Y, जो कोच्चि (केरल) में रहते हैं, को 15 सितंबर, 2025 को लंदन में निर्धारित एक लाइव वेबिनार में भाग लेना है। यह वेबिनार ब्रिटिश ग्रीष्मकालीन समय (BST) के अनुसार दोपहर 2:00 बजे शुरू होगा। सितंबर माह में लंदन, BST समय का पालन करता है, जो GMT+1 घंटा है।

श्री Y को वेबिनार में शामिल होने के लिए कोच्चि से किस समय लॉगिन करना चाहिए?

(a) 15 सितंबर को शाम 6:30 बजे (IST)
(b) 15 सितंबर को शाम 7:30 बजे (IST)
(c) 15 सितंबर को रात 8:00 बजे (IST)
(d) 15 सितंबर को शाम 5:30 बजे (IST)

2. यह देखा गया है कि विषुवत् रेखा के निकट, महासागर का जलस्तर मध्य अक्षांशों की तुलना में लगभग 8 सेमी ऊँचा है। इस घटना के लिए निम्नलिखित में से कौन-सी व्याख्या सर्वाधिक उपयुक्त हो सकती है?

(a) विषुवतरेखीय महासागरों में उच्च लवणता जल घनत्व को बढ़ाती है और इस प्रकार जल स्तर को ऊपर उठाती है।
(b) मध्य अक्षांशों में महाद्वीपीय भूभाग जल संचयन में बाधा डालते हैं, जिससे विषुवत् रेखा के पास समुद्र का स्तर ऊँचा हो जाता है।
(c) विषुवतरेखीय क्षेत्रों में तीव्र सौर तापन के कारण समुद्री जल का तापीय विस्तार होता है।
(d) विषुवतरेखीय क्षेत्रों में प्रबल पवनें विषुवत् रेखा के साथ-साथ महासागर के जल को जमा कर देती हैं।

3. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

शील्ड ज्वालामुखी सामान्यत: अधिक ढालू (Steep) नहीं होते।

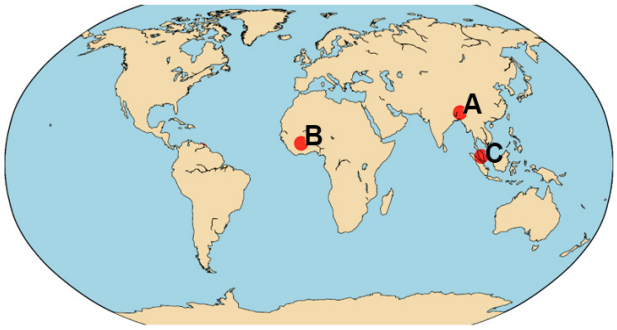
कथन-II:

शील्ड ज्वालामुखी मुख्यत: बेसाल्ट से बने होते हैं, जो एक प्रकार का लावा है और विस्फोट के समय अत्यधिक द्रवित (fluid) होता है।

उपर्युक्त कथनों के संबंध में, निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की व्याख्या करता है।
(b) कथन-I और कथन-II दोनों सही हैं किंतु कथन-II, कथन-I की व्याख्या नहीं करता है।
(c) कथन-I सही है, किंतु कथन-II सही नहीं है।
(d) कथन-I सही नहीं है, किंतु कथन-II सही है।

4. औपनिवेशिक काल के दौरान यूरोपियों ने उष्णकटिबंधीय क्षेत्रों में बागान कृषि (Plantation agriculture) की शुरुआत की। नक्शे पर चिह्नित क्षेत्रों (A, B और C) का वहाँ उगाई जाने वाली प्रमुख बागान फ़सलों से मिलान कीजिए:



(a) A - चाय, B - केले, C - रबर
(b) A - कॉफ़ी, B - रबर, C - चाय
(c) A - गन्ना, B - केले, C - ताड़ का तेल
(d) A - चाय, B - कॉफ़ी, C - रबर

5. निम्नलिखित में से कौन-सी सवाना जलवायु की प्रमुख विशेषताएँ हैं?

1. गर्म, वर्षा ऋतु और ठंडी, शुष्क ऋतु का क्रमिक रूप से आना।
2. तापमान का दैनिक परास (Diurnal range) कम होना।
3. व्यापारिक पवनों (Trade Winds) की प्रबलता।

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 1 और 3
(c) केवल 2 और 3
(d) 1, 2 और 3

6. निम्नलिखित युग्मों पर विचार कीजिए:

	प्रमुख जलडमरूमध्य	वे जल निकाय, जिन्हें ये जोड़ते हैं
1.	होर्मुज जलडमरूमध्य	फ़ारस की खाड़ी और ओमान की खाड़ी
2.	मलक्का जलडमरूमध्य	हिंद महासागर और दक्षिण चीन सागर
3.	बाब-अल-मंदेब	लाल सागर और अदन की खाड़ी

1. Mr. Y, residing in Kochi (Kerala), has to attend a live webinar scheduled in London on 15th September 2025. The webinar is to begin at 2:00 PM BST (British Summer Time). London follows BST in September, which is GMT + 1 hour.

At what time should Mr. Y log in from Kochi to join the webinar?

(a) 6:30 PM IST on 15th September
(b) 7:30 PM IST on 15th September
(c) 8:00 PM IST on 15th September
(d) 5:30 PM IST on 15th September

2. It is observed that near the Equator, the level of ocean water is about 8 cm higher than in the middle latitudes. Which of the following could be the most appropriate explanation for this phenomenon?

(a) High salinity in equatorial oceans increases water density and thereby raises the water level
(b) Continental landmasses in middle latitudes obstruct water accumulation, causing higher sea levels near the Equator
(c) Intense solar heating in equatorial regions leads to thermal expansion of seawater
(d) Stronger winds in equatorial regions pile up ocean water along the Equator

3. Consider the following statements :

Statement-I:

Shield Volcanoes are generally not steep.

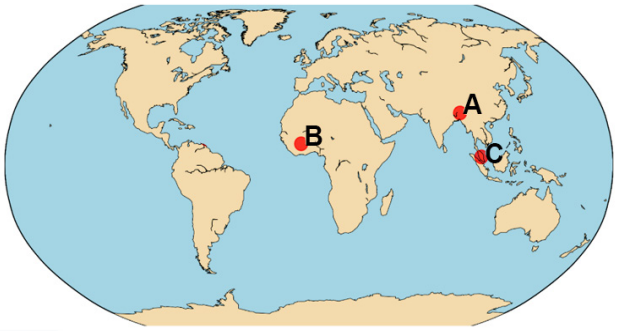
Statement-II:

Shield volcanoes are mostly made up of basalt, a type of lava that is very fluid when erupted.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct, but Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct, but Statement-II is incorrect
(d) Statement-I is incorrect, but Statement-II is correct

4. During the colonial period, Europeans introduced plantation agriculture in tropical regions. Match the following regions (as marked A, B and C on the map) with the major plantation crops cultivated there:



(a) A – Tea, B – Bananas, C – Rubber
(b) A – Coffee, B – Rubber, C – Tea
(c) A – Sugarcane, B – Bananas, C – Oil Palm
(d) A – Tea, B – Cocoa, C – Rubber

5. Which of the following constitute(s) key characteristics of Savanna Climate:

1. Alternate hot, rainy season and cool, dry season.
2. Low diurnal range of temperature.
3. Prevalence of trade winds.

Select the correct answer using the code given below:

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

6. Consider the following pairs:

	Major Straits	*Water bodies they connect*
1.	Strait of Hormuz	Persian Gulf and Gulf of Oman
2.	Strait of Malacca	Indian Ocean and South China Sea
3.	Bab-el-Mandeb	Red Sea and Gulf of Aden

उपर्युक्त युग्मों में से कौन-से सही सुमेलित हैं?
(a) केवल 1 और 2
(b) केवल 1 और 3
(c) केवल 2 और 3
(d) 1, 2 और 3

7. एक देश महाद्वीपों के पश्चिमी तटों पर 30°N और 40°N अक्षांश के बीच स्थित है। यह निम्नलिखित दशाएँ अनुभव करता है:
1. उपोष्णकटिबंधीय उच्च दबाव प्रणालियों से प्रभावित गर्म, शुष्क ग्रीष्मकाल।
2. पछुआ पवनों द्वारा जनित वर्षा से युक्त मृदु शीतकाल (Mild, rainy winters)।
3. सदाबहार झाड़ियों से युक्त वनस्पति।
4. कृषि में अंगूर के बाग, खट्टे फल और गेहूँ की खेती शामिल है।

निम्नलिखित में से कौन-सा जलवायु प्रकार उपर्युक्त विवरण का सर्वोत्तम प्रतिनिधित्व करता है?
(a) चीन तुल्य जलवायु
(b) भूमध्यसागरीय जलवायु
(c) उष्णकटिबंधीय मानसूनी जलवायु
(d) शीतोष्ण महाद्वीपीय (टैगा) जलवायु

8. ताप-लवणीय (थर्मोहैलाइन) परिसंचरण के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:
1. ये महासागरीय क्षेत्रों में पाई जाने वाली उथली जलधाराएँ हैं।
2. ये मुख्यत: समुद्री जल के तापमान और लवणता में अंतर के कारण संचालित होती हैं।
3. भूमंडलीय ऊष्मन के कारण ध्रुवीय बर्फ़ के पिघलने से ताप-लवणीय परिसंचरण कमज़ोर हो सकता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?
(a) केवल 1 और 2
(b) केवल 2
(c) केवल 2 और 3
(d) केवल 1 और 3

9. जलवायुविज्ञान के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:
1. ओस का निर्माण तब होता है जब संघनन हिमांक (Freezing point) से ऊपर होता है।
2. पाला (Frost) का निर्माण तब होता है जब संघनन हिमांक से नीचे होता है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?
(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

10. पृथ्वी के वायुमंडल में जलवाष्प के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:
1. इसकी सांद्रता (Concentration) ऊँचाई के साथ बढ़ती है।
2. कम तापमान और कम वाष्पीकरण के कारण यह ध्रुवीय क्षेत्रों में सबसे अधिक प्रचुर मात्रा में पाया जाता है।
3. यह एक ग्रीनहाउस गैस के रूप में कार्य करता है और पृथ्वी के तापमान को नियंत्रित करने में मदद करता है।

उपर्युक्त कथनों में से कितने सही हैं?
(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

11. भू-आकृति विज्ञान में अपक्षय की प्रक्रिया के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:
1. अपक्षय एक अंतर्जात भू-आकृतिक प्रक्रिया है, जिसमें चट्टानों का विखंडन और विघटन होता है।
2. अपक्षय एक स्वस्थाने (इन-सीटू) प्रक्रिया है, जिसमें पदार्थों की गति नगण्य होती है।
3. चट्टानों और निक्षेपों का अपक्षय कुछ मूल्यवान खनिज अयस्कों के संवर्धन और निष्कर्षण में योगदान देता है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?
(a) केवल 1 और 2
(b) केवल 1
(c) केवल 2 और 3
(d) केवल 3

Which of the pairs given above are correctly matched?
(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

7. A country lies between 30°N and 40°N latitude along the western coasts of continents. It experiences:
1. Hot, dry summers influenced by subtropical high-pressure systems.
2. Mild, rainy winters brought by westerlies.
3. Vegetation dominated by evergreen shrubs.
4. Agriculture includes vineyards, citrus fruits, and wheat cultivation.

Which one of the following climate types best represents the above description?
(a) China Type Climate
(b) Mediterranean Climate
(c) Tropical Monsoon Climate
(d) Temperate Continental (Taiga) Climate

8. With reference to Thermohaline Circulations, consider the following statements:
1. They are shallow-water currents observed in oceanic regions.
2. They are primarily driven by differences in temperature and salinity of seawater.
3. Melting of polar ice due to global warming may weaken thermohaline circulations.

Which of the statements given above is/are correct?
(a) 1 and 2 only
(b) 2 only
(c) 2 and 3 only
(d) 1 and 3 only

9. In the context of climatology, consider the following statements:
1. Dew is formed when condensation occurs above freezing point.
2. Frost is formed when condensation occurs below freezing point.

Which of the statements given above is/are correct?
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

10. With reference to water vapour in the Earth's atmosphere, consider the following statements:
1. Its concentration increases with altitude.
2. It is most abundant in polar regions due to low temperatures and reduced evaporation.
3. It acts as a greenhouse gas and helps regulate the Earth's temperature.

How many of the statements given above are correct?
(a) Only one
(b) Only two
(c) All three
(d) None

11. With reference to the process of Weathering in Geomorphology, consider the following statements:
1. Weathering is an endogenic geomorphic process in which disintegration and decomposition of rocks takes place.
2. Weathering is an in-situ process which involves negligible motion of materials.
3. Weathering of rocks and deposits contributes to the enrichment and extraction of certain valuable mineral ores.

Which of the statements given above is/are correct?
(a) 1 and 2 only
(b) 1 only
(c) 2 and 3 only
(d) 3 only

12. निम्नलिखित में से कौन-से युग्म सुमेलित हैं?

	देश	:	संलग्न जल निकाय
1.	पुर्तगाल	:	भूमध्य सागर
2.	जॉर्डन	:	मृत सागर
3.	तुर्किये	:	एजियन सागर
4.	मिस्र	:	लाल सागर

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:

(a) केवल 2 और 4
(b) केवल 1, 2 और 3
(c) केवल 2, 3 और 4
(d) केवल 1 और 4

13. विभिन्न प्रकार के मेघों के बारे में, निम्नलिखित में से कौन-सा कथन सही नहीं है?

(a) पक्षाभ (Cirrus) मेघ उच्च ऊँचाई वाले, पतले और पंखदार होते हैं।
(b) कपासी (Cumulus) मेघ घने, काले होते हैं और पृथ्वी की सतह के बहुत निकट बनते हैं।
(c) स्तरी (Stratus) मेघ आकाश के बड़े हिस्से को ढकने वाले परतदार बादल होते हैं।
(d) वर्षी (Nimbus) मेघ काले या गहरे भूरे रंग के और अत्यंत घने होते हैं।

14. शैल-अपक्षय (Rock weathering) में वर्षा की भूमिका के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. अधिक वर्षा, लीचिंग तथा विलयन (Solution) प्रक्रियाओं को बढ़ाकर रासायनिक अपक्षय को तीव्र कर देती है।
2. मौसमी वर्षा के कारण बार-बार गीला और सूखा होने से शैलों का विलगाव (Disintegration) होता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

15. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

वायुमंडल पृथ्वी द्वारा उत्सर्जित ऊर्जा से ऊष्मित होता है, न कि आने वाले सौर विकिरण से।

कथन-II:

वायुमंडल दीर्घ-तरंग विकिरण के लिए पारदर्शी है, लेकिन लघु-तरंग विकिरण के लिए अपारदर्शी है।

कथन-III:

हरितगृह गैसें दीर्घ-तरंग पार्थिव विकिरण को अवशोषित करती हैं और उसे पृथ्वी की सतह की ओर पुनः विकीर्णित करती हैं।

उपर्युक्त कथनों के संबंध में, निम्नलिखित में से कौन-सा सही है?

(a) कथन-II और कथन-III दोनों सही हैं और दोनों ही कथन-I की व्याख्या करते हैं।
(b) कथन-II और कथन-III दोनों सही हैं, लेकिन उनमें से केवल एक ही कथन-I की व्याख्या करता है।
(c) कथन-II और-III में से केवल एक ही सही है और वह कथन-I की व्याख्या करता है।
(d) न तो कथन-II और न ही कथन-III सही है।

16. निम्नलिखित में से कौन-से कारक महासागरीय जल के तापमान वितरण को प्रभावित करते हैं?

1. किसी स्थान की अक्षांशीय अवस्थिति
2. किसी स्थान की देशांतरीय अवस्थिति
3. दोनों गोलार्धों में स्थल और जल का असमान वितरण
4. प्रचलित पवनें
5. प्रचलित महासागरीय धाराएँ

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:

(a) केवल 1, 2 और 3
(b) केवल 2, 4 और 5
(c) केवल 1, 3, 4 और 5
(d) 1, 2, 3, 4 और 5

17. क्षेत्रीय ग्रामीण बैंकों (RRBs) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. क्षेत्रीय ग्रामीण बैंकों की स्थापना क्षेत्रीय ग्रामीण बैंक अधिनियम, 1976 के अंतर्गत की गई थी।
2. RRB की शेयर पूँजी भारत सरकार, संबंधित राज्य सरकार और प्रायोजक बैंक द्वारा योगदान की जाती है।
3. इनका विनियमन पूर्णतः भारतीय रिज़र्व बैंक द्वारा है।

12. Which of the following pairs are correctly matched?

	Country	:	*Adjoining water body*
1.	Portugal	:	Mediterranean Sea
2.	Jordan	:	Dead Sea
3.	Turkey	:	Aegean Sea
4.	Egypt	:	Red Sea

Select the correct answer using the code given below:

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

13. Which of the following statements about different types of clouds is ***not*** correct?

(a) Cirrus clouds are high-altitude, thin, and feathery clouds.
(b) Cumulus clouds are dense, dark, and form very near to the surface of the earth.
(c) Stratus clouds are layered clouds covering large portions of the sky.
(d) Nimbus clouds are black or dark gray and extremely dense.

14. With reference to the role of rainfall in rock weathering, consider the following statements:

1. High rainfall accelerates chemical weathering by enhancing leaching and solution processes.
2. Alternate wetting and drying due to seasonal rainfall promotes disintegration of rocks.

Which of the statements given above is/are correct?

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

15. Consider the following statements:

Statement-I:

The atmosphere gets heated by the energy radiated by the Earth and not by the incoming solar radiation.

Statement-II:

The atmosphere is transparent to the long-wave radiation but opaque to short-wave radiation.

Statement-III:

Greenhouse gases absorb long-wave terrestrial radiation and re-radiate it back towards the Earth's surface.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-II and Statement-III are correct and both of them explain Statement-I
(b) Both Statement-II and Statement-III are correct, but only one of them explains Statement-I
(c) Only one of the Statements II and III is correct and that explains Statement-I
(d) Neither Statement-II nor Statement-III is correct

16. Which of the following factors affect the distribution of temperature of ocean water?

1. Latitudinal location of a place
2. Longitudinal location of a place
3. Unequal distribution of land and water in both hemispheres
4. Prevailing wind
5. Prevailing Ocean currents

Select the correct answer using the code given below:

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

17. With reference to Regional Rural Banks (RRBs), consider the following statements:

1. RRBs were established under Regional Rural Banks Act, 1976.
2. The share capital of RRBs is contributed by the Government of India, concerned State Government and the Sponsor Bank.
3. These are solely regulated by the Reserve Bank of India.

उपर्युक्त कथनों में से कौन-से सही हैं?
(a) केवल 1 और 2
(b) केवल 2 और 3
(c) 1, 2 और 3
(d) केवल 1 और 3

18. आर्टेमिस समझौते (Artemis Accords) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:
1. समझौते में बाह्य अंतरिक्ष के नागरिक अन्वेषण और उपयोग को बढ़ाने के लिए सिद्धांतों का एक साझा समुच्चय निर्धारित किया गया है।
2. ये समझौते सभी हस्ताक्षरकर्ता देशों पर कानूनी रूप से बाध्यकारी हैं।
3. भारत इन समझौतों का एक हस्ताक्षरकर्ता है।

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:
(a) केवल 1 और 2
(b) केवल 1 और 3
(c) केवल 3
(d) केवल 2 और 3

19. हाल ही में समाचारों में रही कोकबोरोक भाषा मुख्य रूप से निम्नलिखित में से किस क्षेत्र के लोगों द्वारा बोली जाती है?
(a) अंडमान और निकोबार द्वीपसमूह
(b) त्रिपुरा
(c) झारखंड
(d) छत्तीसगढ़

20. निम्नलिखित में से कौन-सा एक द्वीपीय चाप (Island Arc) की उत्पत्ति की सर्वोत्तम व्याख्या करता है?
(a) दो महाद्वीपीय प्लेटों के अपसरण (Divergence) के कारण भूपर्पटी में खिंचाव (Crustal stretching)
(b) एक महासागरीय प्लेट का दूसरी महासागरीय प्लेट के नीचे प्रविष्ठन (Subduction)
(c) दो महासागरीय प्लेटों के मध्य रूपांतर गति (Transform motion)
(d) मध्य-महासागरीय कटकों के साथ-साथ मैग्मा का अंतर्वेधन (Intrusion)

21. उष्णकटिबंधीय चक्रवातों के निर्माण के लिए निम्नलिखित में से कौन-सी दशाएँ अनुकूल हैं?
1. समुद्र की सतह का तापमान 27°C से अधिक
2. कोरिऑलिस बल की उपस्थिति
3. प्रबल ऊर्ध्वाधर पवन अपरूपण (Wind shear)
4. पूर्व-विद्यमान निम्न दाब क्षेत्र

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:
(a) केवल 1, 2 और 3
(b) केवल 1, 2 और 4
(c) केवल 2, 3 और 4
(d) केवल 1, 3 और 4

22. निम्नलिखित मरुस्थलों का उनके संबंधित देशों/क्षेत्रों से सुमेलित कीजिए:

	मरुस्थल		अवस्थिति
A.	सहारा	1.	चिली और पेरू
B.	अटाकामा	2.	नामीबिया और दक्षिण अफ्रीका
C.	गोबी	3.	मिस्र और सूडान
D.	कालाहारी	4.	चीन और मंगोलिया

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:
(a) A-3, B-1, C-4, D-2
(b) A-2, B-3, C-1, D-4
(c) A-4, B-2, C-3, D-1
(d) A-1, B-4, C-2, D-3

23. एल नीनो के संदर्भ में, निम्नलिखित में से कौन-सा/से कथन सही है/हैं?
1. यह मुख्यत: मध्य और पूर्वी उष्णकटिबंधीय प्रशांत महासागर में समुद्री जल के असामान्य रूप से गर्म होने को संदर्भित करता है।
2. एल नीनो घटना के दौरान, व्यापारिक हवाएँ सामान्य से अधिक प्रबल हो जाती हैं।
3. एल नीनो की स्थिति के कारण नमी की उपलब्धता बढ़ जाने के कारण सामान्यत: भारतीय उप-महाद्वीप में औसत से अधिक मानसूनी वर्षा होती है।

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:
(a) केवल 1
(b) केवल 2
(c) केवल 1 और 3
(d) केवल 2 और 3

Which of the statements given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) 1 and 3 only

18. With reference to the Artemis Accords, consider the following statements:
1. The Accords lay down a common set of principles to enhance civil exploration and use of outer space.
2. The Accords are legally binding on all the signatory States.
3. India is a signatory to the Accords.

Select the correct answer using the code given below:
(a) 1 and 2 only
(b) 1 and 3 only
(c) 3 only
(d) 2 and 3 only

19. The "*Kokborok*" language, recently seen in news, is predominantly spoken by the people of which of the following regions?
(a) Andaman & Nicobar islands
(b) Tripura
(c) Jharkhand
(d) Chattisgarh

20. Which of the following best explains the origin of an island arc?
(a) Divergence of two continental plates causing crustal stretching
(b) Subduction of an oceanic plate beneath another oceanic plate
(c) Transform motion between two oceanic plates
(d) Intrusion of magma along mid-ocean ridges

21. Which of the following conditions are favourable for the formation of tropical cyclones?
1. Sea surface temperature more than 27°C
2. Presence of Coriolis force
3. Strong vertical wind shear
4. Pre-existing low-pressure area

Select the correct answer using the code given below:
(a) 1, 2 and 3 only
(b) 1, 2 and 4 only
(c) 2, 3 and 4 only
(d) 1, 3 and 4 only

22. Match the following deserts with their respective countries/regions:

	Deserts		*Region where they are located*
A.	Sahara	1.	Chile and Peru
B.	Atacama	2.	Namibia and South Africa
C.	Gobi	3.	Egypt and Sudan
D.	Kalahari	4.	China and Mongolia

Select the correct answer using the code given below:
(a) A-3, B-1, C-4, D-2
(b) A-2, B-3, C-1, D-4
(c) A-4, B-2, C-3, D-1
(d) A-1, B-4, C-2, D-3

23. Which of the following statements with reference to El Nino is/are correct?
1. It refers to the abnormal warming of sea waters mainly in the central and eastern tropical Pacific Ocean.
2. During an El Nino event, the trade winds become stronger than usual.
3. El Niño conditions generally lead to above-average monsoon rainfall over the Indian subcontinent due to enhanced moisture availability.

Select the correct answer using the code given below:
(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 2 and 3 only

24. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

बृहत् संचलन (Mass movements) की प्रक्रिया में कोई भी भू-आकृतिक कारक प्रत्यक्ष रूप से शामिल नहीं होता है।

कथन-II:

बृहत् संचलन गुरुत्वाकर्षण के प्रत्यक्ष प्रभाव में होता है।

उपर्युक्त कथनों के संबंध में, निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं और कथन-II, कथन-I की सही व्याख्या है।
(b) कथन-I और कथन-II दोनों सही हैं और कथन-II, कथन-I की सही व्याख्या नहीं है।
(c) कथन-I सही है, लेकिन कथन-II गलत है।
(d) कथन-I गलत है, लेकिन कथन-II सही है।

25. निम्नलिखित में से किस तिथि को सूर्य दक्षिण की ओर सबसे अधिक झुका हुआ प्रतीत होता है, जिसके परिणामस्वरूप दक्षिणी गोलार्ध में सबसे लंबा दिन और उत्तरी गोलार्ध में सबसे छोटा दिन होता है?

(a) 21 मार्च
(b) 21 जून
(c) 22 सितंबर
(d) 22 दिसंबर

26. कोरिऑलिस बल के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. यह विषुवत् रेखा पर अधिकतम और ध्रुवों पर न्यूनतम होता है।
2. यह गतिमान पवनों की दिशा और गति को प्रभावित करता है।
3. यह उत्तरी गोलार्ध में पवन को दाईं ओर तथा दक्षिणी गोलार्ध में बाईं ओर विक्षेपित करता है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

27. क्षोभमंडल के संबंध में, निम्नलिखित में से कौन-सा/से कथन सही है/हैं?

1. जलवायु और मौसम में सभी परिवर्तन मुख्यत: क्षोभमंडल में होते हैं।
2. क्षोभमंडल पृथ्वी से पारेषित रेडियो तरंगों को वापस इसकी सतह की ओर परावर्तित करता है।
3. क्षोभमंडल की मोटाई विषुवत् रेखा से ध्रुवों तक एकसमान रहती है।

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 1
(c) केवल 2 और 3
(d) केवल 3

28. निम्नलिखित कथनों पर विचार कीजिए:

1. स्वेज नहर भूमध्य सागर और लाल सागर को जोड़ती है।
2. पनामा नहर अटलांटिक महासागर और प्रशांत महासागर को जोड़ती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

29. निम्नलिखित युग्मों पर विचार कीजिए:

	नाभिकीय ऊर्जा परियोजनाएँ	राज्य
1.	तारापुर	महाराष्ट्र
2.	कलपक्कम	तमिलनाडु
3.	नरोरा	राजस्थान
4.	कैगा	कर्नाटक

उपर्युक्त युग्मों में से कितने युग्म सही सुमेलित हैं?

(a) केवल एक
(b) केवल दो
(c) केवल तीन
(d) सभी चार

24. Consider the following statements :

Statement-I:

No geomorphic agent is directly involved in the process of mass movements.

Statement-II:

Mass movements take place under the direct influence of gravity.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I

(c) Statement-I is correct but Statement-II is incorrect

(d) Statement-I is incorrect but Statement-II is correct

25. On which of the following dates does the Sun appear to be tilted at its maximum towards the south, resulting in the longest day in the Southern Hemisphere and the shortest day in the Northern Hemisphere?

(a) 21st March

(b) 21st June

(c) 22nd September

(d) 22nd December

26. With reference to the Coriolis Force, consider the following statements:

1. It is maximum at the equator and minimum at the poles.
2. It affects the direction and speed of moving winds.
3. It deflects the wind to the right direction in the northern hemisphere and to the left in the southern hemisphere.

How many of the above statements are correct?

(a) Only one

(b) Only two

(c) All three

(d) None

27. Which of the following statements is/are correct with respect to the Troposphere?

1. All changes in climate and weather mainly take place in Troposphere.
2. The troposphere reflects radio waves transmitted from the Earth back towards its surface.
3. The thickness of the troposphere remains uniform from the equator to the poles.

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 1 only

(c) 2 and 3 only

(d) 3 only

28. Consider the following statements:

1. The Suez Canal connects the Mediterranean Sea and Red Sea.
2. The Panama Canal connects the Atlantic Ocean and Pacific Ocean.

Which of the statements above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

29. Consider the following pairs:

	Nuclear Power Projects	*States*
1.	Tarapur	Maharashtra
2.	Kalpakkam	Tamil Nadu
3.	Narora	Rajasthan
4.	Kaiga	Karnataka

How many of the above pairs are correctly matched?

(a) Only one

(b) Only two

(c) Only three

(d) All four

30. वक्फ़ (संशोधन) अधिनियम, 2025 के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. इसमें छह माह के भीतर सभी वक्फ़ संपत्तियों का डिजिटलीकरण और केंद्रीकृत पंजीकरण अनिवार्य किया गया है।
2. केवल कम-से-कम 5 वर्षों से इस्लाम का पालन कर रहे मुस्लिम ही अपनी संपत्ति को वक्फ़ के रूप में समर्पित कर सकते हैं।
3. किसी अन्य कानून के अंतर्गत मुस्लिमों द्वारा बनाए गए ट्रस्ट अब वक्फ़ नहीं माने जाएँगे।

उपर्युक्त में से कौन-से कथन सही हैं?

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) 1, 2 और 3
(d) केवल 1 और 3

31. निम्नलिखित में से कौन-सा कथन हर्ड और मैकडोनाल्ड द्वीपसमूह के मुद्दे को सबसे अच्छी तरह से दर्शाता है, जिसका उल्लेख कभी-कभी समाचारों में होता है?

(a) ऑस्ट्रेलियाई सरकार ने हाल ही में इन द्वीपों पर एक नए अनुसंधान केंद्र के निर्माण की घोषणा की है।
(b) संयुक्त राज्य अमेरिका ने इन द्वीपों से आयात पर 10% शुल्क लगाया है, जबकि इन द्वीपों पर मानवीय क्रियाकलाप न्यूनतम है।
(c) वैज्ञानिकों ने द्वीपों पर पेंगुइन की एक पहले से अज्ञात प्रजाति की खोज की है, जिसने वैश्विक ध्यान आकर्षित किया है।
(d) इन द्वीपों को दक्षिणी महासागर की समुद्री सीमाओं को विनियमित करने वाली एक नई अंतर्राष्ट्रीय संधि में शामिल किया गया है।

32. प्रधानमंत्री मुद्रा योजना (PMMY) के बारे में, निम्नलिखित कथनों पर विचार कीजिए:

1. यह योजना संपार्श्विक-मुक्त संस्थागत ऋण (Collateral-free institutional credit) के माध्यम से सूक्ष्म इकाइयों (Micro units) को विकास और पुनर्वित्त सहायता प्रदान करती है।
2. इस योजना में संवृद्धि के चरण और वित्तपोषण आवश्यकताओं के आधार पर चार ऋण श्रेणियाँ हैं: शिशु, किशोर, तरुण और तरुण प्लस।
3. PMMY का कार्यान्वयन सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय (MSME) के अंतर्गत किया जाता है।

उपर्युक्त में से कौन-से कथन सही हैं?

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

33. "ये उष्णकटिबंधीय महासागरों के वलयाकार निम्नस्थ द्वीप हैं, जो प्रवाल भित्तियों से विकसित हुए हैं। ये सामान्यतः एक केंद्रीय गर्त को परिबद्ध करते हैं, जो समुद्र से जुड़ा एक लैगून जैसा प्रतीत हो सकता है, या कुछ मामलों में एक जल निकाय जैसा प्रतीत हो सकता है, जो अलवणीय, खारा या लवणीय हो सकता है।"

उपर्युक्त परिच्छेद में निम्नलिखित में से किस महासागरीय उच्चावच विशेषता का वर्णन किया गया है?

(a) समुद्री टीला (Seamount)
(b) अंत:सागरीय कंदरा (Submarine Canyon)
(c) निमग्न द्वीप (Guyot)
(d) प्रवाल वलय (Atoll)

34. निम्नलिखित युग्मों पर विचार कीजिए:

	अंतर्वेधी ज्वालामुखीय स्थलरूप	विवरण
1.	लैपोलिथ	भूपर्पटी की गहरी परतों में स्थित मैग्मा का विशाल पिंड
2.	बैथोलिथ	गुंबद के आकार के मैग्मा खण्ड
3.	सिल	तश्तरी के आकार की मैग्मा संरचनाएँ

उपर्युक्त युग्मों में से कितने युग्म सही सुमेलित नहीं हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

35. सूर्य ग्रहण के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. पूर्ण सूर्य ग्रहण तब होता है, जब चंद्रमा पृथ्वी और सूर्य के ठीक मध्य में आ जाता है।

30. With reference to the Waqf (Amendment) Act, 2025, consider the following statements:
1. It mandates the digitization and centralized registration of all Waqf properties within six months.
2. Only practicing Muslims for at least 5 years can dedicate property as Waqf.
3. Muslim-created trusts under any other law will no longer be treated as Waqf.

Which of the statements given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) 1 and 3 only

31. Which one of the following statements best reflects the issue with Heard and McDonald Islands, sometimes mentioned in the news?
(a) The Australian government recently announced the construction of a new research station on the islands.
(b) The United States imposed a 10% tariff on imports from these islands, despite their minimal human activity.
(c) Scientists discovered a previously unknown species of penguin on the islands, attracting global attention.
(d) The islands were included in a new international treaty regulating Southern Ocean maritime boundaries.

32. Consider the following statements about Pradhan Mantri Mudra Yojana (PMMY):
1. The scheme provides development and refinancing support to micro units through collateral-free institutional credit.
2. The scheme has four loan categories: Shishu, Kishor, Tarun, and Tarun Plus, based on the stage of growth and funding needs.
3. PMMY is implemented under the Ministry of Micro, Small and Medium Enterprises (MSME).

Which of the statements given above is/are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

33. "These are ring-shaped low-lying islands of tropical oceans, developed from coral reefs. They typically enclose a central depression which may appear as a lagoon connected to the sea, or in some cases as a water body that can be fresh, brackish, or saline".

Which one of the following oceanic relief features is being described in the above passage?
(a) Seamount
(b) Submarine Canyon
(c) Guyot
(d) Atoll

34. Consider the following pairs:

	Intrusive Volcanic Landform	*Description*
1.	Lapolith	Massive body of magma located in deeper layers of crust
2.	Batholith	Dome-shaped magma patches
3.	Sill	Saucer shaped magma structures

How many of the above pairs are ***not*** correctly matched?
(a) Only one
(b) Only two
(c) All three
(d) None

35. With reference to solar eclipses, consider the following statements:
1. A total solar eclipse is observed when the Moon comes directly between the Earth and the Sun.

2. पूर्ण सूर्य ग्रहण के दौरान ही सौर कोरोना (किरीट) नग्न आँखों से दिखाई देता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

36. निम्नलिखित में से कौन-से भारतीय ग्रंथ हाल ही में यूनेस्को के मेमोरी ऑफ़ द वर्ल्ड रजिस्टर (Memory of the World Register) में शामिल किए गए हैं?

1. भगवद्गीता
2. नाट्यशास्त्र
3. अर्थशास्त्र

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

37. प्रगति (PRAGATI – प्रो-एक्टिव गवर्नेंस एंड टाइमली इम्प्लिमेंटेशन) पहल के संदर्भ में, निम्नलिखित में से कौन-सा कथन सही नहीं है?

(a) इसकी अध्यक्षता प्रधानमंत्री करते हैं।
(b) यह वीडियो कॉन्फ्रेंसिंग के माध्यम से केंद्रीय और राज्य अधिकारियों के साथ एकसाथ संवाद की सुविधा प्रदान करता है।
(c) इसका सीधे प्रशासित नीति आयोग (NITI Aayog) द्वारा किया जाता है।
(d) इसका उद्देश्य जन-शिकायतों तथा परियोजनाओं में देरी दोनों का समाधान करना है।

38. महासागरीय धाराएँ विभिन्न क्षेत्रों में गर्म और ठंडे जल का परिवहन करके वैश्विक जलवायु को विनियमित करने में महत्त्वपूर्ण भूमिका निभाती हैं। इसके संदर्भ में, निम्नलिखित में से किस महासागरीय धारा को शीत धारा के रूप में वर्गीकृत किया जा सकता है?

1. पेरू (हम्बोल्ट) धारा
2. अलास्का धारा
3. कैलिफ़ोर्निया धारा
4. लैब्राडोर धारा

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 3 और 4
(c) केवल 2 और 4
(d) केवल 1, 3 और 4

39. पृथ्वी की सतह पर प्राप्त सौर विकिरण (Insolation) की परिवर्तनशीलता को प्रभावित करने वाले कौन-से कारक हैं?

1. पृथ्वी का अपनी धुरी पर घूर्णन
2. सूर्य किरणों का झुकाव कोण (Angle of inclination)
3. दिन की अवधि (Length of the day)
4. वायुमंडल की पारदर्शिता (Transparency of the atmosphere)
5. पवन की दिशा (Direction of the wind)

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1, 2 और 3
(b) केवल 2, 3 और 4
(c) केवल 1, 2, 3 और 4
(d) 1, 2, 3, 4 और 5

40. आदिम निर्वाह कृषि (स्थानांतरी कृषि) के संदर्भ में, निम्नलिखित युग्मों पर विचार कीजिए:

	क्षेत्र/देश	**स्थानीय नाम**
1.	पूर्वोत्तर भारत	झूम
2.	मैक्सिको	मिल्पा
3.	इंडोनेशिया	लदांग
4.	फ़िलीपींस	कैंगिन
5.	म्यांमार	टौंग्या

उपर्युक्त युग्मों में से कितने सही सुमेलित हैं?

(a) केवल तीन
(b) केवल चार
(c) सभी पाँच
(d) कोई नहीं

41. हाल ही में चर्चा में रही HEALD पहल का मुख्य उद्देश्य क्या है?

(a) यकृत विकारों के आनुवंशिक और वंशानुगत कारकों पर शोध

2. The solar corona becomes visible to the naked eye only during a total solar eclipse.

Which of the statements given above is/are correct?
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

36. Which of the following Indian works have recently been inscribed in UNESCO's Memory of the World Register?
1. Bhagavad Gita
2. Natyashastra
3. Arthashastra

Select the correct answer using the code given below:
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, and 3 only
(d) 1, 2 and 3

37. With reference to the PRAGATI (Pro-Active Governance and Timely Implementation) initiative, which of the following statements is ***not*** correct?
(a) It is chaired by the Prime Minister.
(b) It enables simultaneous interaction with Central and State officials through video-conferencing.
(c) It is administered directly by NITI Aayog.
(d) It aims to address both public grievances and project delays.

38. Ocean currents play a significant role in regulating global climate by transporting warm and cold water across different regions. With reference to this, which of the following ocean currents can be classified as Cold Currents?
1. Peru (Humboldt) Current
2. Alaska Current
3. California Current
4. Labrador Current

Select the correct answer using the code given below:
(a) 1 and 2 only
(b) 3 and 4 only
(c) 2 and 4 only
(d) 1, 3 and 4 only

39. Which of the following factors influence the variability of insolation on the Earth's surface?
1. Rotation of the Earth on its axis
2. Angle of inclination of the Sun's rays
3. Length of the day
4. Transparency of the atmosphere
5. Direction of the wind

Select the correct answer using the code given below:
(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 2, 3 and 4 only
(d) 1, 2, 3, 4 and 5

40. With reference to Primitive Subsistence Agriculture (Shifting Cultivation), consider the following pairs:

	Region/Country	*Local Name*
1.	North-Eastern India	Jhum
2.	México	Milpa
3.	Indonesia	Ladang
4.	Philippines	Kaingin
5.	Myanmar	Taungya

How many of the above pairs are correctly matched?
(a) Only three
(b) Only four
(c) All five
(d) None

41. What is the primary focus of the "HEALD" initiative, which was in the news recently?
(a) Researching genetic and hereditary factors of liver disorders

(b) दीर्घकालिक यकृत रोगों के लिए शल्य चिकित्सा पद्धतियों का विकास

(c) शराब के सेवन और यकृत जोख़िमों पर सर्वेक्षण और शोध करना

(d) शराब से संबंधित यकृत रोग के बारे में जागरूकता बढ़ाना, शीघ्र पहचान और प्रबंधन करना

42. निम्नलिखित युग्मों पर विचार कीजिए:

	रक्षा अभ्यास	सम्मिलित देश
1.	INDRA	भारत और रूस
2.	DUSTLIK	भारत और उज़्बेकिस्तान
3.	Tiger Triumph	भारत और संयुक्त राज्य अमेरिका

उपर्युक्त युग्मों में से कौन-से सही हैं?

(a) केवल 1 और 2

(b) केवल 2 और 3

(c) केवल 1 और 3

(d) 1, 2 और 3

43. महाद्वीपीय मग्नतट के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. महाद्वीपीय मग्नतट महाद्वीपीय भूभाग का विस्तार है, जहाँ अपेक्षाकृत उथला समुद्र होता है।
2. महाद्वीपीय मग्नतट का औसत ढाल महाद्वीपीय ढाल की तुलना में अधिक तीव्र है।
3. महाद्वीपीय मग्नतट प्राय: पेट्रोलियम और प्राकृतिक गैस भंडारों से समृद्ध होते हैं।

उपर्युक्त में से कौन-से कथन सही हैं?

(a) केवल 1 और 2

(b) केवल 2 और 3

(c) केवल 1 और 3

(d) 1, 2 और 3

44. "यह वायु की क्षैतिज गति के माध्यम से ऊष्मा स्थानांतरण की एक क्रियाविधि है। मध्य अक्षांशों में, दैनिक मौसम में अधिकांश दैनिक (दिन और रात) परिवर्तन इसी के कारण होते हैं, इसलिए यह ऊर्ध्वाधर गति की तुलना में अपेक्षाकृत अधिक महत्त्वपूर्ण है। उत्तर भारत में ग्रीष्म ऋतु के दौरान, 'लू' नामक स्थानीय पवनें इसी प्रक्रिया का परिणाम होती हैं।"

उपर्युक्त परिच्छेद में वायुमंडल के गर्म और ठंडे होने की निम्नलिखित में से किस क्रियाविधि का वर्णन किया गया है?

(a) चालन

(b) संवहन

(c) विकिरण

(d) अभिवहन

45. विश्व बायोम के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. शंकुधारी वनों से युक्त टैगा बायोम मुख्यत: रूस और कनाडा में पाया जाता है।
2. शीतोष्ण पर्णपाती वन लंबे शुष्क ग्रीष्मकाल वाली गर्म और शुष्क जलवायु के लिए अनुकूलित होते हैं।
3. उष्णकटिबंधीय क्षेत्रों में सवाना घास के मैदानों की विशेषता ऊँची घास और प्रकीर्ण (छितरे हुए) वृक्ष हैं।

उपर्युक्त में से कौन-से कथन सही हैं?

(a) केवल 1 और 3

(b) केवल 2 और 3

(c) केवल 1 और 2

(d) 1, 2 और 3

46. हिमनद अपरदन और निक्षेपण के महत्त्वपूर्ण कारक हैं। निम्नलिखित में से कौन-सी भू-आकृतियाँ मुख्यत: हिमनदों की क्रियाओं से संबद्ध हैं?

1. हिमगह्वर (सर्क)
2. फियोर्ड
3. प्लाया
4. बरखान
5. हिमोढ़

नीचे दिए गए कूट का प्रयोग कर सही उत्तर चुनिए:

(a) केवल 1, 3 और 4

(b) केवल 1, 3 और 5

(c) केवल 2 और 4

(d) केवल 1, 2 और 5

(b) Developing surgical methods for chronic liver conditions
(c) Conducting surveys and research on alcohol consumption and liver risks
(d) Promoting awareness, early detection, and management of alcohol-associated liver disease

42. Consider the following pairs:

	Defence Exercises	*Countries involved*
1.	INDRA	India and Russia
2.	DUSTLIK	India and Uzbekistan
3.	Tiger Triumph	India and United States of America

Which of the pairs given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

43. Consider the following statements with reference to continental shelf:
1. The continental shelf forms the shallow seaward extension of the continental landmass.
2. The average gradient of the continental shelf is steeper than that of the continental slope.
3. Continental shelves are often rich in petroleum and natural gas reserves.

Which of the statements given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

44. "This is a mechanism of transfer of heat through horizontal movement of air. In middle latitudes, most of the diurnal (day and night) variation in daily weather is caused by this, hence it is relatively more important than the vertical movement. During the summer season in northern India, local winds called 'loo' are an outcome of this process."

Which of the following mechanisms of heating and cooling of the atmosphere is described in the above paragraph?
(a) Conduction
(b) Convection
(c) Radiation
(d) Advection

45. With reference to world biomes, consider the following statements:
1. Taiga biome, dominated by coniferous forests, is found mainly in Russia and Canada.
2. Temperate deciduous forests are adapted to hot and dry climates with long dry summers.
3. Savanna grasslands are characterised by tall grasses and scattered trees in tropical regions.

Which of the above statements are correct?
(a) 1 and 3 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

46. Glaciers are important agents of erosion and deposition. Which of the following landforms are primarily associated with the activity of glaciers?
1. Cirques
2. Fjords
3. Playas
4. Barchans
5. Moraines

Select the correct answer using the code given below:
(a) 1, 3 and 4 only
(b) 1, 3 and 5 only
(c) 2 and 4 only
(d) 1, 2 and 5 only

47. निम्नलिखित युग्मों पर विचार कीजिए:

	नदी	:	**जल विसर्जन**
1.	डेन्यूब	:	काला सागर
2.	वोल्गा	:	कैस्पियन सागर
3.	ज़ाम्बेज़ी	:	हिंद महासागर

उपर्युक्त युग्मों में से कितने सही सुमेलित हैं?

(a) केवल एक युग्म
(b) केवल दो युग्म
(c) सभी तीन युग्म
(d) कोई नहीं

48. प्लेट विवर्तनिकी सिद्धांत के संदर्भ में, निम्नलिखित में से कौन-से कथन सही हैं?

1. महाद्वीपीय प्लेटें और महासागरीय प्लेटें, दोनों ही दुर्बलतामंडल (एस्थेनोस्फीयर) के ऊपर उत्प्लावित हैं।
2. स्थलमंडलीय प्लेटों की गति मुख्यत: संवहन धाराओं द्वारा संचालित होती है।
3. रूपांतर सीमाएँ (Transform Boundaries) वे स्थान हैं, जहाँ विवर्तनिक प्लेटों के एक-दूसरे के अगल-बगल क्षैतिज रूप से सरकने (Slide) पर नई भूपर्पटी का निर्माण होता है।

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 2
(c) केवल 1 और 3
(d) केवल 3

49. स्वामित्व (SVAMITVA) योजना के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. इसका उद्देश्य ग्रामीण नियोजन और संपत्ति प्रबंधन के लिए सटीक भूमि रिकॉर्ड तैयार करना है।
2. इसका कार्यान्वयन ग्रामीण विकास मंत्रालय द्वारा किया जाता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

50. हाल ही में, केंद्रीय प्रदूषण नियंत्रण बोर्ड (CPCB) ने उद्योगों के अपने वर्गीकरण को संशोधित किया है और अपनी औद्योगिक वर्गीकरण प्रणाली में एक नई "नीली श्रेणी" (Blue Category) आरंभ की है। "नीली श्रेणी" के उद्योगों में निम्नलिखित में से कौन शामिल है?

(a) कम प्रदूषण वाले उद्योग, जो पहले हरित श्रेणी (Green Category) के अंतर्गत आते थे, लेकिन अब उन्हें सभी नियामक अनुपालनों से छूट दी गई है।
(b) सबसे अधिक प्रदूषण क्षमता वाले उद्योग, जिन्हें लाल श्रेणी (Red Category) के मानदंडों के तहत कड़ी निगरानी और मंजूरी की आवश्यकता होती है।
(c) कतिपय क्रियाकलापों से उत्पन्न पर्यावरण प्रदूषण के प्रबंधन के लिए आवश्यक पर्यावरणीय सेवाएँ।
(d) खनन और खनिज-आधारित गतिविधियाँ, जो विशेषत: पारिस्थितिक रूप से भंगुर क्षेत्रों में जल प्रदूषण का महत्त्वपूर्ण कारण बनती हैं।

51. भारत, इज़राइल, संयुक्त अरब अमीरात (UAE) और संयुक्त राज्य अमेरिका (USA) से मिलकर बने I2U2 संघ की प्रकृति को निम्नलिखित में से कौन-सा सबसे उपयुक्त रूप से वर्णित करता है?

(a) हिंद-प्रशांत क्षेत्र में समुद्री सुरक्षा पर केंद्रित एक बहुपक्षीय सैन्य गठबंधन
(b) संयुक्त निवेश और प्रौद्योगिकी सहयोग पर केंद्रित एक अनौपचारिक आर्थिक समूह
(c) परमाणु अप्रसार और निरस्त्रीकरण को बढ़ावा देने वाला एक अंतर-सरकारी संगठन
(d) गुटनिरपेक्ष आंदोलन (Non-Aligned Movement) के अंतर्गत एक उप-समूह

52. डिजिटल थ्रेट रिपोर्ट (Digital Threat Report) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. यह रिपोर्ट इलेक्ट्रॉनिक्स और सूचना प्रौद्योगिकी मंत्रालय (MeitY) के अंतर्गत भारतीय कंप्यूटर आपातकालीन प्रतिक्रिया दल (CERT-In) की एक पहल है।

47. Consider the following pairs:

	River	:	*Flows into*
1.	Danube	:	Black Sea
2.	Volga	:	Caspian Sea
3.	Zambezi	:	Indian Ocean

How many of the above pairs are correctly matched?

(a) Only one pair
(b) Only two pairs
(c) All three pairs
(d) None

48. Which of the following statements with reference to the theory of Plate Tectonics are correct?

1. Both continental plates as well as oceanic plates float over the asthenosphere.
2. The movement of lithospheric plates is primarily driven by convection currents.
3. Transform Boundaries are the sites where new crust is produced as the tectonic plates slide horizontally past each other.

Select the correct answer using the code given below:

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

49. With reference to the SVAMITVA Scheme, consider the following statements:

1. It aims to create accurate land records for rural planning and property management.
2. It is implemented by the Ministry of Rural Development.

Which of the statements given above is/are correct?

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

50. Recently, the Central Pollution Control Board (CPCB) has revised its classification of industries and introduced a new "Blue Category" in its industrial classification system. The "Blue Category" industries include which one of the following?

(a) Low-polluting industries earlier covered under the Green Category but now exempted from all regulatory compliance.
(b) Industries with the highest pollution potential, requiring stringent monitoring and clearance under the Red Category norms.
(c) Essential environmental services for management of environmental pollution arising from certain activities.
(d) Mining and mineral-based activities that cause significant water pollution, especially in ecologically fragile zones.

51. Which one of the following best describes the nature of the I2U2 grouping, comprising India, Israel, the United Arab Emirates (UAE), and the United States of America (USA)?

(a) A multilateral military alliance focused on maritime security in the Indo-Pacific region
(b) An informal economic grouping focused on joint investments and technology cooperation.
(c) An intergovernmental organization for promoting nuclear non-proliferation and disarmament
(d) A sub-group under the Non-Aligned Movement.

52. Consider the following statements regarding Digital Threat Report:

1. It is an initiative of Indian Computer Emergency Response Team (CERT-In) under the Ministry of Electronics and Information Technology (MeitY)

2. यह उभरते हुए साइबर जोख़िमों, हमले की रणनीतियों तथा सुभेद्यताओ (Vulnerabilities) का विश्लेषण प्रस्तुत करती है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

53. महासागरीय ज्वार-भाटे के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. ज्वार-भाटे मुख्यत: मौसम संबंधी कारकों जैसे पवनों और वायुमंडलीय दाब में परिवर्तन के कारण उत्पन्न होते हैं।
2. ज्वार-भाटे के दौरान, पृथ्वी पर सामान्यत: दो प्रमुख ज्वारीय उभार बनते हैं।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

54. निम्नलिखित कथनों पर विचार कीजिए:

1. विश्व के प्रमुख कॉफ़ी-व्यापारिक देश उष्णकटिबंधीय क्षेत्रों में स्थित हैं।
2. कॉफ़ी की खेती के लिए गर्म, आर्द्र जलवायु तथा अच्छी तरह से जल-निकासी वाली दोमट मिट्टी की आवश्यकता होती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

55. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

न्यूफ़ाउंडलैंड के ग्रैंड बैंक्स विश्व के सर्वाधिक उत्पादक मत्स्य क्षेत्रों में से एक हैं।

कथन-II:

ठंडी लैब्राडोर धारा और ऊष्ण गल्फ़ धारा के मिलने से पोषक तत्त्वों की उपलब्धता बढ़ती है, जिसके कारण प्लवक (प्लैंकटन) की अधिक वृद्धि होती है।

उपर्युक्त कथनों के संदर्भ में निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की व्याख्या करता है।
(b) कथन-I और कथन-II दोनों सही हैं किंतु कथन-II, कथन-I की व्याख्या नहीं करता है।
(c) कथन-I सही है, किंतु कथन-II सही नहीं है।
(d) कथन-I सही नहीं है, किंतु कथन-II सही है।

56. भारत में महत्त्वपूर्ण खनिजों के संदर्भ में 'टेलिंग' शब्द का प्रयोग प्राय: किया जाता है। निम्नलिखित में से कौन-सा विकल्प 'टेलिंग' का सबसे उपयुक्त वर्णन करता है?

(a) दुर्लभ मृदा तत्त्वों को निकालने के लिए प्रयुक्त गहरे समुद्र खनन की एक विधि।
(b) जैव-लीचिंग प्रक्रियाओं द्वारा महत्त्वपूर्ण खनिजों को परिष्कृत करना।
(c) अयस्क से मूल्यवान खनिजों के निष्कर्षण के बाद बचा हुआ अपशिष्ट पदार्थ।
(d) अवसादी शैल संरचनाएँ, जिनमें महत्त्वपूर्ण खनिज पाए जाते हैं।

57. महासागरीय तापमान (Oceanic Temperature) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. उत्तरी गोलार्ध के महासागरों में, दक्षिणी गोलार्ध की अपेक्षा अपेक्षाकृत अधिक तापमान दर्ज किया जाता है।
2. महासागरीय जल का अधिकतम तापमान सामान्यत: सतह पर पाया जाता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

2. It provides an analysis of emerging cyber risks, attack tactics, and vulnerabilities.

Which of the statements given above is/are correct?

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

53. Consider the following statements with reference to oceanic tides:

1. Tides are generated primarily due to meteorological factors such as winds and variations in atmospheric pressure.
2. During a tide, two major tidal bulges are usually formed on the Earth.

Which of the statements given above is/are correct?

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

54. Consider the following statements:

1. The major coffee-trading nations of the world are situated within the tropical regions.
2. Coffee cultivation requires a warm, humid climate and well-drained loamy soil.

Which of the statements given above is/are correct?

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

55. Consider the following statements :

Statement-I:

The Grand Banks of Newfoundland constitute one of the world's most productive fishing grounds.

Statement-II:

The convergence of the cold Labrador Current and the warm Gulf Stream enhances nutrient availability, leading to high plankton growth.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct, but Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct, but Statement-II is incorrect
(d) Statement-I is incorrect, but Statement-II is correct

56. The term 'tailing' is often used in the context of critical minerals in India. Which of the following best describes 'tailing'?

(a) A method of deep-sea mining used to extract rare earth elements.
(b) Refining critical minerals using bioleaching processes.
(c) Waste material left after the extraction of valuable minerals from ore.
(d) Sedimentary rock formations in which critical minerals are found.

57. Consider the following statements regarding oceanic temperature:

1. Oceans in the northern hemisphere record relatively higher temperatures than in the southern hemisphere.
2. The maximum temperature of ocean waters is generally observed at the surface.

Which of the statements given above is/are correct?

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

58. "यह ज्वार तब आता है, जब सूर्य, चंद्रमा और पृथ्वी एक सीधी रेखा में होते हैं। ज्वार की ऊँचाई सामान्य तौर पर अन्य ज्वारों से अधिक होती है। ये महीने में दो बार आते हैं, एक पूर्णिमा के दौरान और दूसरा अमावस्या के दौरान।"

उपर्युक्त अनुच्छेद में निम्नलिखित में से किस प्रकार के ज्वार का वर्णन किया गया है?

(a) लघु ज्वार
(b) बृहत् ज्वार
(c) दैनिक ज्वार
(d) मिश्रित ज्वार

59. अंत:क्षेपी ज्वालामुखीय भू-आकृतियों के बारे में निम्नलिखित कथनों पर विचार कीजिए:

1. लैकोलिथ गुंबदाकार अंत:क्षेपी निकाय होते हैं जिनका आधार समतल होता है और वे पाइप जैसी नलिका द्वारा मैग्मा कक्ष से जुड़े होते हैं।
2. डाइक वे अंत:क्षेपी निकाय हैं जो तब बनते हैं जब मैग्मा आस-पास की शैलों के संस्तरण तलों (Bedding planes) के समानांतर ठोस हो जाता है।

उपर्युक्त में से कौन-सा/से कथन सही नहीं है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

60. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

महासागरीय जल के गर्म होने और ठंडा होने की प्रक्रिया स्थल की तुलना में धीमी होती है।

कथन-II:

महासागरीय धाराएँ भूमध्यरेखीय क्षेत्रों से ध्रुवीय क्षेत्रों तक ऊष्मा का स्थानांतरण करती हैं, जिससे वैश्विक जलवायु को संतुलित करने में मदद मिलती है।

उपर्युक्त कथनों के संदर्भ में निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की व्याख्या करता है।
(b) कथन-I और कथन-II दोनों सही हैं किंतु कथन-II, कथन-I की व्याख्या नहीं करता है।
(c) कथन-I सही है, किंतु कथन-II सही नहीं है।
(d) कथन-I सही नहीं है, किंतु कथन-II सही है।

61. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

ध्रुवीय जेट धाराएँ (Polar Jet Streams) उत्तरी और दक्षिणी दोनों गोलार्धों में शीत ऋतु के दौरान सबसे प्रबल होती हैं।

कथन-II:

शीत ऋतु के दौरान, ऊष्मीय (Thermal) विरोधाभास घट जाता है और ध्रुव पर उच्च दवाब केंद्र की तीव्रता बढ़ जाती है।

उपर्युक्त कथनों के संदर्भ में निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की व्याख्या करता है।
(b) कथन-I और कथन-II दोनों सही हैं किंतु कथन-II, कथन-I की व्याख्या नहीं करता है।
(c) कथन-I सही है, किंतु कथन-II सही नहीं है।
(d) कथन-I सही नहीं है, किंतु कथन-II सही है।

62. पृथ्वी की जलवायु प्रणाली के संदर्भ में, "ऊष्मा बजट" शब्द का क्या अर्थ है?

(a) किसी दिए गए समय में महासागरों और महाद्वीपों में संगृहीत कुल ऊष्मा
(b) आने वाले सौर विकिरण और बाहर जाने वाले पार्थिव विकिरण के बीच संतुलन
(c) मेघों और पृथ्वी की सतह द्वारा परावर्तित कुल ऊर्जा
(d) जलवाष्प और हरितगृह गैसों द्वारा अवशोषित ऊष्मा

58. "This tide occurs when the sun, the moon and the earth are in a straight line. The height of the tide is usually higher than the other tides. They occur twice a month, one during the full moon period and another during the new moon period."

Which of the following types of tides is being described in the above paragraph?

(a) Neap tides
(b) Spring tides
(c) Diurnal tide
(d) Mixed tide

59. Consider the following statements about intrusive volcanic landforms:

1. Laccoliths are dome-shaped intrusive bodies with a flat base, connected to the magma chamber by a pipe-like conduit.
2. Dykes are intrusive bodies formed when magma solidifies parallel to the bedding planes of surrounding rocks.

Which of the statements given above is/are ***not*** correct?

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

60. Consider the following statements :

Statement-I:

The process of heating and cooling of oceanic water is slower than that of land.

Statement-II:

Ocean currents transfer heat from equatorial regions to polar regions, thereby moderating global climate.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

61. Consider the following statements:

Statement-I :

Polar Jet streams are strongest during winters in both the northern and southern hemisphere.

Statement-II :

During winters, the thermal contrast decreases and the intensity of the high pressure center at the pole increases.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but StatementII is correct

62. In the context of Earth's climate system, what does the term "Heat Budget" refer to?

(a) The total heat stored in oceans and continents at any given time
(b) The balance between incoming solar radiation and outgoing terrestrial radiation.
(c) The total energy reflected by clouds and the Earth's surface
(d) The heat absorbed by water vapour and greenhouse gases

63. भूमिगत जल (Groundwater) की क्रिया से निर्मित स्थलरूपों के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. ये स्थलरूप मुख्यत: उन क्षेत्रों में विकसित होते हैं जहाँ कैल्सियम कार्बोनेट से समृद्ध शैलें, जैसे चूना पत्थर (Limestone) या डोलोमाइट, पाई जाती हैं।
2. स्टैलेक्टाइट्स (Stalactites) भूमिगत जल द्वारा निर्मित अपक्षयी (Erosional) संरचनाएँ हैं, जबकि स्टैलेग्माइट्स (Stalagmites) निक्षेपणात्मक (Depositional) संरचनाएँ होती हैं।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

64. समुद्री पश्चिमी तट जलवायु (Marine West Coast Climate) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. इसमें वर्ष भर वर्षा होती है।
2. यह दक्षिणी चिली और न्यूज़ीलैंड जैसे क्षेत्रों में पाई जाती है।
3. इसमें अत्यधिक तापमान पाया जाता है, जिसमें कठोर शीत ऋतु और आर्द्र ग्रीष्म ऋतु होती है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

65. निम्नलिखित कथनों पर विचार कीजिए:

1. खाड़ी (Gulf) महासागर का वह भाग है जो आंशिक रूप से स्थल से घिरा होता है।
2. जलडमरूमध्य (Strait) एक संकीर्ण जलमार्ग है जो दो बड़े जल निकायों को जोड़ता है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

66. निम्नलिखित में से कौन-सा देश विश्व में यूरेनियम का सबसे बड़ा उत्पादक है?

(a) कनाडा
(b) ऑस्ट्रेलिया
(c) कज़ाकिस्तान
(d) रूस

67. निम्नलिखित में से कौन-से साक्ष्य अल्फ्रेड वेगनर द्वारा प्रस्तावित महाद्वीपीय विस्थापन सिद्धांत का समर्थन करते हैं?

1. अफ्रीका और दक्षिण अमेरिका की तटरेखाओं का मिलान
2. यूरोप और ऑस्ट्रेलिया के समरूप प्राचीन शैल निक्षेप
3. फ़ॉकलैंड द्वीप, मेडागास्कर और अंटार्कटिका में गोंडवाना की टिलाइट शैल की उपस्थिति
4. घाना में सोने के प्लेसर निक्षेपों का पाया जाना, जबकि ब्राज़ील में उनकी संगत स्वर्ण युक्त शिराएँ पाई जाती हैं

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 1, 3 और 4
(c) केवल 2, 3 और 4
(d) 1, 2, 3 और 4

68. निम्नलिखित में से कौन-से ग्रंथ महात्मा ज्योतिबा फुले द्वारा रचे गए थे?

1. गुलामगिरी
2. शेतकार्याचा असूद (Shetkaryacha Asud)
3. सार्वजनिक सत्यधर्म पुस्तक (Sarvajanik Satya Dharma Pustak)

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

69. गाँधीसागर वन्यजीव अभयारण्य के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. इसे भारत में कुनो राष्ट्रीय उद्यान के बाद, चीतों का दूसरा घर बनाने का प्रस्ताव है।

63. With reference to landforms formed by the action of groundwater, consider the following statements:

1. These landforms mainly develop in the regions where calcium carbonate rich rocks such as limestones or dolomites are present.
2. Stalactites are erosional features formed by groundwater, whereas stalagmites are depositional features.

Which of the statements given above is/are correct?

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

64. With reference to the Marine West Coast Climate, consider the following statements:

1. It receives precipitation all round the year.
2. It occurs in regions such as southern Chile and New Zealand.
3. It experiences extreme temperatures with severe winters and humid summers

How many of the statements given above are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

65. Consider the following statements:

1. A gulf is a part of the ocean that is partially enclosed by land.
2. A strait is a narrow waterway connecting two larger bodies of water.

Which of the statements given above is/are correct?

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

66. Which one of the following countries is the largest producer of uranium in the world?

(a) Canada
(b) Australia
(c) Kazakhstan
(d) Russia

67. Which of the following evidences support the theory of Continental Drift as proposed by Alfred Wegener?

1. Matching of shorelines of Africa and South America
2. Identical ancient rock deposits of Europe and Australia
3. Presence of Tillite rock of Gondwana in Falkland Island, Madagascar and Antarctica
4. Occurrence of placer deposits of gold in Ghana while their corresponding gold bearing veins in Brazil

Select the correct answer using the code given below:

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

68. Which of the following works were authored by Mahatma Jyotiba Phule?

1. Gulamgiri
2. Shetkaryacha Asud
3. Sarvajanik Satya Dharma Pustak

Select the correct answer using the code given below:

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

69. With reference to Gandhi Sagar Wildlife Sanctuary, consider the following statements:

1. It is proposed to become the second home for Cheetahs in India after Kuno National Park.

2. यह राजस्थान राज्य में स्थित है।
3. बेतवा नदी इस अभयारण्य से होकर बहती है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1
(b) केवल 1 और 2
(c) केवल 3
(d) 1, 2 और 3

70. भूकंप के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. फ़ोकस (Focus) पृथ्वी के भीतर वह बिंदु है जहाँ भूकंप के दौरान सर्वप्रथम ऊर्जा का उत्सर्जन होता है।
2. अधिकेंद्र (Epicenter) पृथ्वी की सतह पर वह बिंदु है जो फ़ोकस के ठीक ऊपर स्थित होता है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

71. ऊष्ण महासागरीय धाराओं (Warm Ocean Currents) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. ये प्रायः उत्तरी गोलार्ध के उच्च अक्षांशों में महाद्वीपों के पूर्वी तट पर पाई जाती हैं।
2. ऊष्ण धाराओं के प्रभाव वाले क्षेत्र सामान्यतः शुष्क होते हैं।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

72. भू-विक्षेपी पवनें (Geostrophic Winds), जो समदाब रेखाओं (Isobars) के समानांतर चलती हैं, निम्नलिखित में से किन कारणों का परिणाम होती हैं?

(a) ऊपरी वायुमंडल में पवन प्रतिरोध (Wind resistance) की नगण्य उपस्थिति।
(b) कोरिऑलिस बल और दाब प्रवणता बल (Pressure gradient force) के मध्य संतुलन।
(c) क्षैतिज दाब प्रवणताओं की तुलना में ऊष्मीय संवहन (Thermal convection) का प्रभुत्व।
(d) पवन प्रवाह के लंबवत् कार्य करने वाले पृथ्वी के घूर्णन का प्रभाव।

73. फ़ुटलूज़ (Footloose) तथा नॉन-फ़ुटलूज़ (Non-Footloose) उद्योगों के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. गैर-फ़ुटलूज़ उद्योग सामान्यतः प्रदूषणकारी नहीं होते, जबकि फ़ुटलूज़ उद्योग गंभीर पर्यावरणीय चुनौतियाँ प्रस्तुत करते हैं।
2. नॉन-फ़ुटलूज़ उद्योग कच्चे माल के स्रोतों के स्थान पर निर्भर होते हैं, जबकि फ़ुटलूज़ उद्योग कहीं भी स्थापित किए जा सकते हैं।
3. फ़ुटलूज़ उद्योग सामान्यतः हल्के घटकों के साथ उच्च मूल्य संवर्धन (High value addition) से जुड़े होते हैं, जबकि नॉन-फ़ुटलूज़ उद्योगों में ऐसा नहीं होता।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

74. निम्नलिखित में से किस परिस्थिति में तापमान व्युत्क्रमण (Temperature Inversion) की संभावना सबसे कम होती है?

(a) साफ आसमान और लंबी शीतकालीन रातें
(b) शांत वायुमंडलीय परिस्थितियाँ
(c) स्थल से तीव्र विकिरण ह्रास (Rapid terrestrial radiation loss)
(d) बादल युक्त तथा तेज़ हवा वाली रातें

75. प्राकृतिक गैस के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. प्राकृतिक गैस का सबसे बड़ा घटक मेथेन है।
2. विश्व में प्राकृतिक गैस के सर्वाधिक प्रमाणित भंडार संयुक्त राज्य अमेरिका के पास हैं।
3. प्राकृतिक गैस मुख्यतः कोक उत्पादन हेतु कोयले के प्रसंस्करण के दौरान सह-उत्पाद (By-product) के रूप में प्राप्त होती है।

2. It is located in the State of Rajasthan.
3. The River Betwa flows through the Sanctuary.

Which of the statements given above is/are correct?
(a) 1 only
(b) 1 and 2 only
(c) 3 only
(d) 1, 2 and 3

70. With reference to earthquakes, consider the following statements:
1. Focus is the point inside the Earth where the energy is first released during an earthquake.
2. Epicenter is the point on the Earth's surface located directly above the focus.

Which of the statements given above is/are correct?
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

71. Consider the following statements with reference to Warm Ocean Currents:
1. They are usually found on the east coast of the continents in the higher latitudes in the Northern Hemisphere.
2. The areas under influence of Warm currents are generally arid.

Which of the statements given above is/are correct?
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

72. Geostrophic winds, which travel parallel to isobars, are the result of which of the following factors?
(a) Negligible presence of wind resistance in the upper atmosphere.
(b) Equilibrium between the Coriolis force and the pressure gradient force.
(c) Dominance of thermal convection over horizontal pressure gradients.
(d) Influence of the Earth's rotation acting perpendicular to the wind flow.

73. Consider the following statements regarding Footloose and Non-Footloose industries:
1. Non-footloose industries are generally non-polluting, whereas footloose industries pose severe environmental challenges.
2. Non-footloose industries are dependent on the location of raw material sources, while footloose industries can be established anywhere.
3. Footloose industries typically involve high value addition with lightweight components, unlike non-footloose industries.

Which of the statements given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

74. Temperature inversion is least likely to occur in which of the following conditions?
(a) Clear skies and long winter nights
(b) Calm atmospheric conditions
(c) Rapid terrestrial radiation loss
(d) Cloudy and windy nights

75. With reference to the Natural Gas, consider the following statements:
1. The largest component of natural gas is methane.
2. The United States possesses the largest proven reserves of natural gas in the world.
3. Natural gas is primarily obtained as a by-product during the processing of coal to produce coke.

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?
(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1
(d) 1, 2 और 3

76. निम्नलिखित में से कौन-सा क्षेत्र शैलों (Rocks) के तीव्र रासायनिक अपक्षय (Chemical Weathering) के लिए सबसे अनुकूल परिस्थितियाँ प्रदान करता है?
(a) शीत मरुस्थल (Cold deserts) जहाँ वर्षा अत्यंत कम होती है
(b) विषुवतीय क्षेत्र (Equatorial regions) जहाँ उच्च तापमान और भारी वर्षा होती है
(c) मध्य अक्षांशीय घासभूमि (Mid-latitude grasslands) जहाँ मध्यम वर्षा होती है
(d) ध्रुवीय क्षेत्र (Polar regions) जहाँ निम्न तापमान और अत्यल्प वर्षा होती है

77. 'दुर्लभ मृदा खनिजों' (Rare Earth Minerals) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:
1. ये पृथ्वी की पर्पटी (Crust) में पाए जाने वाले 17 रासायनिक तत्त्वों का समूह हैं।
2. इनका मुख्यत: उपयोग अर्धचालक (Semiconductors), रक्षा उपकरण तथा अन्य उन्नत प्रौद्योगिकियों के निर्माण में किया जाता है।
3. भारत दुर्लभ मृदा खनिजों में आत्मनिर्भर है।

उपर्युक्त में से कितने कथन सही हैं?
(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

78. निम्नलिखित युग्मों पर विचार कीजिए:

	ग्रह	उनकी विशेषताएँ
1.	बुध (Mercury)	सबसे गर्म ग्रह
2.	शुक्र (Venus)	वामावर्त/प्रतिगामी घूर्णन (Retrograde) करता है
3.	बृहस्पति (Jupiter)	सौरमंडल का सबसे बड़ा ग्रह
4.	वरुण (Neptune)	सूर्य की परिक्रमा सबसे कम समय में करता है

उपर्युक्त युग्मों में से कितने सही सुमेलित हैं?
(a) केवल एक
(b) केवल दो
(c) केवल तीन
(d) सभी चार

79. "38वाँ उत्तरी समानांतर" (38th Parallel North) निम्नलिखित में से किन भौगोलिक अथवा राजनीतिक क्षेत्रों के बीच की सीमा को दर्शाता है?
(a) रूस और चीन
(b) रूस और उत्तर कोरिया
(c) रूस और यूक्रेन
(d) उत्तर कोरिया और दक्षिण कोरिया

80. वायुमंडल में ओज़ोन के संबंध में निम्नलिखित कथनों पर विचार कीजिए:
1. यह प्रकाश-रासायनिक धुंध (Photochemical smog) का एक मुख्य घटक है।
2. यह पृथ्वी के संपूर्ण वायुमंडल में समान रूप से हानिकारक है।
3. यह पौधों के ऊतकों को नुकसान पहुँचा सकती है और फ़सल उत्पादकता को कम कर सकती है।

उपर्युक्त में से कौन-से कथन सही हैं?
(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

81. प्रतिचक्रवात (Anti-cyclones) के संबंध में निम्नलिखित कथनों पर विचार कीजिए:
1. प्रतिचक्रवात एक पवन तंत्र है जो उत्तरी गोलार्ध में उच्च वायुदाब केंद्र के चारों ओर वामावर्त दिशा (Counterclockwise) में घूमता है।
2. ये सामान्यत: चक्रवातों से छोटे होते हैं।
3. ये सामान्यत: प्रचंड तूफ़ानों और ख़राब मौसम के साथ बनते हैं।

उपर्युक्त में से कौन-से कथन सही नहीं हैं?
(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

Which of the statements given above is/are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 only
(d) 1, 2 and 3

76. Which one of the following regions provides the most favourable conditions for intense chemical weathering of rocks?
(a) Cold deserts with very low rainfall
(b) Equatorial regions with high temperature and heavy rainfall
(c) Mid-latitude grasslands with moderate rainfall
(d) Polar regions with low temperature and scanty precipitation

77. With reference to the 'Rare Earth Minerals', consider the following statements:
1. These are a set of seventeen chemical elements present in the earth's crust.
2. They are primarily used in the manufacturing of semiconductors, defence equipment, and other advanced technologies.
3. India is self-sufficient in rare earth minerals.

How many of the statements given above are correct?
(a) Only one
(b) Only two
(c) All three
(d) None

78. Consider the following pairs:

	Planet	*Their Characteristics*
1.	Mercury	Hottest planet
2.	Venus	Rotates in retrograde direction
3.	Jupiter	Largest planet of the solar system
4.	Neptune	Takes shortest time to revolve around the Sun

How many of the above pairs are correctly matched?
(a) Only one pair
(b) Only two pairs
(c) Only three pairs
(d) All four pairs

79. The "38th Parallel North" marks the boundary between which of the following geographical or political regions?
(a) Russia and China
(b) Russia and North Korea
(c) Russia and Ukraine
(d) North Korea and South Korea

80. Consider the following statements regarding ozone in the atmosphere:
1. It is a primary component of photochemical smog.
2. It is uniformly harmful throughout the Earth's atmosphere.
3. It can damage plant tissues and reduce crop productivity.

Which of the statements given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

81. With respect to anti-cyclones, consider the following statements:
1. An anticyclone is a wind system that rotates around a centre of high atmospheric pressure in a counterclockwise direction in the Northern Hemisphere.
2. They are generally smaller than cyclones.
3. They are usually accompanied by violent storms and bad weather.

Which of the statements given above are ***not*** correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

82. भारत में शैल गैस के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. शैल गैस प्राकृतिक गैस का एक रूप है, जो शैल चट्टानों के भीतर मुक्त और घुली हुई दोनों अवस्थाओं में संगृहीत रहती है।
2. शैल गैस के उत्पादन के लिए क्षैतिज प्रवेधन (ड्रिलिंग) और हाइड्रोलिक फ्रैक्चरिंग जैसी तकनीकों की आवश्यकता होती है।
3. भारत में, शैल गैस संरचनाएँ केवल अपतटीय कृष्णा-गोदावरी बेसिन में पाई जाती हैं।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

83. निम्नलिखित कथनों पर विचार कीजिए:

1. रूस, वेनेजुएला के बाद कच्चे तेल का दूसरा सबसे बड़ा भंडार (Crude oil reserve) रखता है।
2. भारत, चीन के बाद रूसी तेल का दूसरा सबसे बड़ा ख़रीदार है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

84. भूकंप के दौरान उत्पन्न भूकंपीय तरंगों के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. प्राथमिक (P) तरंगें और द्वितीयक (S) तरंगें, दोनों पृथ्वी के आंतरिक भाग से होकर गुज़रती हैं और विभिन्न शैल घनत्वों के कारण अपवर्तित होती हैं।
2. P तरंगें संपीड़न तरंगें होती हैं, जबकि S तरंगें अनुप्रस्थ तरंगें होती हैं।
3. P और S दोनों तरंगें पृथ्वी के तरल बाहरी क्रोड से होकर गुज़रने में सक्षम हैं।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

85. शीतोष्ण चक्रवातों के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. ये मुख्यत: किसी वाताग्र के सहारे गर्म और ठंडी वायुराशियों के अभिसरण के कारण बनते हैं।
2. ये केवल बड़े महाद्वीपीय भूभागों पर उत्पन्न होते हैं, महासागरों पर नहीं।
3. ये सामान्यत: उष्णकटिबंधीय चक्रवातों की तुलना में बड़े क्षेत्र को आवृत करते हैं।

उपर्युक्त कथनों में से कौन-से सही हैं?

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

86. हाल ही में उद्घाटन किए गए नए पंबन ब्रिज के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. यह भारत का पहला वर्टिकल लिफ्ट रेलवे समुद्री पुल है।
2. यह मन्नार की खाड़ी में स्थित है।
3. यह रामेश्वरम द्वीप को भारत की मुख्य भूमि से जोड़ता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 और 2
(b) केवल 1 और 3
(c) केवल 3
(d) केवल 2 और 3

87. चंद्रयान के ChaSTE के संदर्भ में, जिसका उल्लेख कभी-कभी समाचारों में होता है, निम्नलिखित में से कौन-सा कथन इसके महत्त्व को सबसे अच्छी तरह दर्शाता है?

(a) यह चंद्रमा के भूमध्यरेखीय क्षेत्र पर भूकंपीय गतिविधि अध्ययन करने वाला पहला भारतीय उपकरण है।

82. Consider the following statements with reference to shale gas in India:

1. Shale gas is a form of natural gas stored within shale rocks in both free and dissolved states.
2. The production of shale gas requires techniques such as horizontal drilling and hydraulic fracturing.
3. In India, shale gas formations are found only in the offshore Krishna–Godavari basin.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

83. Consider the following statements:

1. Russia has the second largest crude oil reserve after Venezuela.
2. India is the second largest buyer of Russian oil after China.

Which of the statements given above is/are correct?

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

84. With reference to seismic waves generated during earthquakes, consider the following statements:

1. Both Primary (P) waves and Secondary (S) waves propagate through the interior of the Earth and are refracted due to varying rock densities.
2. P waves are compressional waves, whereas S waves are transverse waves.
3. Both P and S waves are capable of travelling through the liquid outer core of the Earth.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

85. Consider the following statements with reference to Temperate cyclones:

1. They are primarily formed due to convergence of warm and cold airmasses along a front.
2. They originate only over large continental landmasses and not over oceans.
3. They generally cover a larger area than tropical cyclones.

Which of the statements given above are correct?

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

86. With reference to the recently inaugurated New Pamban Bridge, consider the following statements:

1. It is India's first vertical lift railway sea bridge.
2. It is situated in the Gulf of Mannar.
3. It connects Rameswaram Island with mainland India.

Which of the statements given above is/are correct?

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

87. With reference to the Chandrayaan's ChaSTE, sometimes mentioned in the news, which one of the following statements best reflects its significance?

(a) It is the first Indian instrument to conduct seismic activity studies on the Moon's equatorial region.

(b) यह चंद्रमा के दक्षिणी ध्रुव के स्वस्थाने तापमान को मापने वाला और जलीय बर्फ़ की अपेक्षा से अधिक उपस्थिति की पुष्टि करने वाला पहला उपकरण है।

(c) यह एक इमेजिंग उपकरण है, जो स्थायी रूप से छायादार (Shadowed) चंद्र क्रेटरों के उच्च-रिजॉल्यूशन वाले चित्र लेता है।

(d) यह एक रोवर-जनित स्पेक्ट्रोमीटर है, जिसे चंद्र चट्टानों की खनिज संरचना का विश्लेषण करने के लिए डिज़ाइन किया गया है।

88. स्टैंड-अप इंडिया योजना (Stand-Up India Scheme) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. इसे वित्त मंत्रालय (Ministry of Finance) द्वारा प्रारंभ किया गया है।
2. इसका उद्देश्य अनुसूचित जाति/अनुसूचित जनजाति और महिला उद्यमियों को ग्रीनफील्ड उद्यम (Greenfield Enterprises) स्थापित करने हेतु वित्तीय सहायता प्रदान करना है।
3. यह ₹10 लाख से ₹1 करोड़ तक के बैंक ऋण की सुविधा प्रदान करती है।

उपर्युक्त में से कौन-से कथन सही हैं?

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

89. तड़ित झंझावातों (Thunderstorms) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. तड़ित झंझावात ठंडी हवा के तीव्र अवरोहण (Rapid descent) के परिणामस्वरूप बनते हैं, जिससे निम्बोस्ट्रेटस (Nimbostratus) बादल का निर्माण होता है।
2. बिजली (Lightning) तड़ित झंझावातों के दौरान बादलों में विद्युत आवेश (Electrical charges) के एकत्र होने का परिणाम है।
3. गड़गड़ाहट (Thunder) तीव्र ऊष्मा के कारण बिजली की चमक (Lightning bolt) के चारों ओर की वायु के तीव्र प्रसार (Rapid expansion) से उत्पन्न होती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 3
(b) केवल 1 और 2
(c) केवल 2 और 3
(d) 1, 2 और 3

90. ध्रुवीय भँवर (Polar Vortex) के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. यह ध्रुवीय क्षेत्रों के ऊपर उच्च दाब का क्षेत्र है।
2. उत्तरी गोलार्ध में यह शीत ऋतु के दौरान अधिक प्रबल होता है और अधिक ठंडा हो जाता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, और न ही 2

91. निम्नलिखित युग्मों पर विचार कीजिए:

	घटना	तारे के जीवन का संबंधित चरण
1.	हीलियम फ्लैश (Helium flash)	तारों का जन्म
2.	सुपरनोवा विस्फोट (Supernova explosion)	एक विशाल तारे (giant star) की मृत्यु
3.	लाल दानव (Red Giant)	कम द्रव्यमान वाले तारों का अंतिम चरण

उपर्युक्त में से कितने युग्म सही सुमेलित हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

92. निम्नलिखित में से कौन-सा देश "लिथियम त्रिकोण" (Lithium Triangle) का हिस्सा नहीं है, जो अपने विशाल लिथियम भंडार के लिए प्रसिद्ध है?

(a) अर्जेंटीना
(b) चिली
(c) बोलिविया
(d) ब्राज़ील

93. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

समताप रेखाएँ (Isotherms) दक्षिणी गोलार्ध में उत्तरी गोलार्ध की तुलना में अधिक विचलन (Deviation) दर्शाती हैं।

(b) It is the first instrument to measure in-situ temperatures near the lunar south pole and confirm higher-than-expected prevalence of water ice.
(c) It is an imaging device that captures high-resolution pictures of permanently shadowed lunar craters.
(d) It is a rover-borne spectrometer designed to analyze the mineral composition of lunar rocks.

88. With reference to the Stand-Up India Scheme, consider the following statements:
1. It has been launched by the Ministry of Finance.
2. It aims to provide financial assistance to SC/ST and women entrepreneurs for setting up greenfield enterprises.
3. It facilitates bank loans between ₹10 lakh and ₹1 crore.

Which of the statements given above are correct?
(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

89. Consider the following statements regarding the thunderstorms:
1. Thunderstorms are the result of rapid descent of cool air, leading to the formation of nimbostratus clouds.
2. Lightning is the result of electrical charges building up in clouds during thunderstorms.
3. Thunder is caused by the rapid expansion of air surrounding a lightning bolt due to intense heat.

Which of the statements given above is/are correct?
(a) 3 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

90. With reference to the polar vortex, consider the following statements:
1. It is an area of high pressure over the polar regions.
2. In the Northern Hemisphere, it strengthens and becomes colder during winter.

Which of the statements given above is/are correct?
(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

91. Consider the following pairs:

	Phenomenon	*Associated Stage of Star*
1.	Helium flash	Birth of Stars
2.	Supernova explosion	Death of a giant star
3.	Red Giant	Final stage of low mass stars

How many of the above pairs are correctly matched?
(a) Only one
(b) Only two
(c) All three
(d) None

92. Which one of the following countries is ***not*** a part of the "Lithium Triangle", a region known for its vast lithium reserves?
(a) Argentina
(b) Chile
(c) Bolivia
(d) Brazil

93. Consider the following statements :

Statement-I:

Isotherms show greater deviation in the southern hemisphere than in the northern hemisphere.

कथन-II:

दक्षिणी गोलार्ध में महासागरीय सतह का अनुपात अधिक है, जो तापमान के वितरण को संतुलित (Moderate) करता है।

उपर्युक्त कथनों के संदर्भ में निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की व्याख्या करता है।
(b) कथन-I और कथन-II दोनों सही हैं किंतु कथन-II, कथन-I की व्याख्या नहीं करता है।
(c) कथन-I सही है, किंतु कथन-II सही नहीं है।
(d) कथन-I सही नहीं है, किंतु कथन-II सही है।

94. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

चीन के बाद भारत दुनिया में कोयले का सबसे बड़ा उपभोक्ता है।

कथन-II:

भारत बिजली उत्पादन और औद्योगिक क्षेत्रों के लिए बड़े पैमाने पर कोयले पर निर्भर करता है।

उपर्युक्त कथनों के संदर्भ में निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की व्याख्या करता है।
(b) कथन-I और कथन-II दोनों सही हैं किंतु कथन-II, कथन-I की व्याख्या नहीं करता है।
(c) कथन-I सही है, किंतु कथन-II सही नहीं है।
(d) कथन-I सही नहीं है, किंतु कथन-II सही है।

95. निम्नलिखित कथनों पर विचार कीजिए:

कथन-I: प्रत्येक वर्ष 3 जनवरी के आस-पास, पृथ्वी पर ज्वार-भाटे की परास अपेक्षाकृत अधिक होती है, जिसमें असामान्य रूप से उच्च ज्वार और असामान्य रूप से निम्न भाटा होता है।

कथन-II: पृथ्वी और सूर्य के बीच की दूरी में परिवर्तन ज्वार-भाटे की परास को प्रभावित करता है।

उपर्युक्त कथनों के संबंध में, निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं और कथन-II, कथन-I की सही व्याख्या है।
(b) कथन-I और कथन-II दोनों सही हैं, लेकिन कथन-II, कथन-I की सही व्याख्या नहीं है।
(c) कथन-I सही है, लेकिन कथन-II गलत है।
(d) कथन-I गलत है, लेकिन कथन-II सही है।

96. मैडेन-जूलियन दोलन (MJO) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिए:

1. MJO वर्षा, पवनों और दाब का एक बृहत् पैमाने का प्रतिरूप है, जो ग्रह के भूमध्यरेखीय और उष्णकटिबंधीय क्षेत्रों में होता है।
2. MJO के संचलन की दिशा पूर्व से पश्चिम की ओर होती है।
3. एक पूर्ण MJO चक्र सामान्यत: लगभग 5-6 महीने तक चलता है।
4. MJO के संवर्धित संवहनी चरण वाले क्षेत्रों में वर्षा में वृद्धि होती है।

उपर्युक्त में से कौन-से कथन सही हैं?

(a) केवल 1, 2 और 3
(b) केवल 2 और 4
(c) केवल 1 और 4
(d) केवल 2, 3 और 4

97. प्रवाल भित्ति (Coral Reef) के निर्माण हेतु आवश्यक परिस्थितियों के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

1. प्रवाल सामान्यत: उथले, गर्म उष्णकटिबंधीय समुद्री जल में पर्याप्त सूर्यप्रकाश के साथ पनपते हैं।
2. अधिक गाद जमाव (High sedimentation) और ताज़े पानी का अधिक प्रवाह (Freshwater influx) प्रवाल की वृद्धि के लिए अनुकूल होते हैं।

Statement-II:

The southern hemisphere has a larger proportion of ocean surface, which moderates temperature distribution.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct, but Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct, but Statement-II is incorrect
(d) Statement-I is incorrect, but Statement-II is correct

94. Consider the following statements :

Statement-I:

India is the largest consumer of coal in the world after China.

Statement-II:

India relies heavily on coal for electricity generation and industrial sectors.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct, but Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct, but Statement-II is incorrect
(d) Statement-I is incorrect, but Statement-II is correct

95. Consider the following statements:

Statement-I:

Around 3rd January each year, the tidal ranges on the Earth are relatively higher, with unusually high and unusually low tides.

Statement-II:

The variation in the distance between the Earth and the Sun has an influence on the tidal ranges.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct but Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

96. With reference to Madden-Julian Oscillations (MJO), consider the following statements:

1. MJO is a large-scale pattern of rainfall, winds and pressure that occurs in the equatorial and tropical regions of the planet.
2. The direction of movement of MJO is from east to west.
3. A complete MJO cycle usually lasts for about 5–6 months.
4. Regions under the enhanced convective phase of MJO experience increased precipitation.

Which of the above statements are correct?

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

97. With reference to conditions required for coral reef formation, consider the following statements:

1. Corals generally thrive in shallow, warm tropical waters with abundant sunlight.
2. High sedimentation and freshwater influx are favourable for coral growth.

3. 30–35 भाग प्रति हज़ार (ppt) की समुद्री लवणता भित्ति के विकास के लिए उपयुक्त है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई नहीं

98. पर्वतीय वर्षा के संदर्भ में निम्नलिखित कथनों पर विचार कीजिए:

कथन-I:

पवनाभिमुख ढलानों (Windward slopes) की तुलना में, पवनपश्च ढलानों (Leeward slopes) पर सामान्यत: कम वर्षा होती है।

कथन-II:

अवरोही (नीचे उतरती हुई) वायु की आर्द्रता धारण करने की क्षमता बढ़ जाती है।

कथन-III:

पवनाभिमुख दिशा में वायु अपनी सारी नमी खो देती है।

उपर्युक्त कथनों के संबंध में, निम्नलिखित में से कौन-सा सही है?

(a) कथन-II और कथन-III दोनों सही हैं और दोनों ही कथन-I की व्याख्या करते हैं।
(b) कथन-II और कथन-III दोनों सही हैं, लेकिन उनमें से केवल एक ही कथन-I की व्याख्या करता है।
(c) कथन-II और कथन-III में से केवल एक ही सही है और वही कथन-I की व्याख्या करता है।
(d) न तो कथन-II और न ही कथन-III सही है।

99. मृत सागर के जल में व्यक्ति सामान्यत: डूबता नहीं है। इस परिघटना का सबसे उपयुक्त कारण क्या है?

(a) मृत सागर में गुरुत्वाकर्षण बल अधिक होता है।
(b) लवणीय जल की श्यानता बढ़ जाती है।
(c) उच्च लवणता के कारण जल का घनत्व अधिक होता है।
(d) लवणीय जल में मानव शरीर का भार कम हो जाता है।

100. सामान्यत: यह प्रेक्षित किया गया है कि उष्णकटिबंधीय अक्षांशों की तुलना में उच्च अक्षांशों पर बहुत कम सूर्यातप प्राप्त होता है। इसके निम्नलिखित में से कौन-से कारण हैं?

1. उच्च अक्षांशों पर सूर्य की किरणें तिरछी पड़ती हैं, जो एक बड़े सतह क्षेत्र पर फैल जाती हैं।
2. तिरछी किरणों का वायुमंडल में अधिक अवशोषण, प्रकीर्णन और विसरण होता है।

नीचे दिए गए कूट का प्रयोग करके सही उत्तर चुनिए:

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1, न ही 2

■■■■

3. Ocean salinity in the range of 30–35 parts per thousand is suitable for reef development.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

98. In the context of orographic rainfall, consider the following statements:

Statement-I:

As compared to windward slopes, leeward slopes generally receive less rainfall.

Statement-II:

The capacity of descending air to hold moisture increases.

Statement-III:

The air loses all its moisture content on the windward side.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-II and Statement-III are correct and both of them explain Statement-I
(b) Both Statement-II and Statement-III are correct, but only one of them explains Statement-I
(c) Only one of the Statements II and III is correct and that explains Statement-I
(d) Neither Statement-II nor Statement-III is correct

99. A person falling into the waters of the Dead Sea generally does not sink. What is the most appropriate reason for this phenomenon?

(a) Greater gravitational pull at the Dead Sea
(b) Increased viscosity of saline water
(c) Higher density of water due to its high salinity
(d) Reduced weight of the human body in saline water.

100. It is generally observed that the higher latitudes receive much less insolation as compared to the tropical latitudes. Which of the following are the reasons for this?

1. The higher latitudes receive slanting sunrays that spread over a larger surface area.
2. Slanting rays undergo greater absorption, scattering and diffusion in the atmosphere.

Select the correct answer using the code given below:

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

■■■■

Space for Rough Work

NEXT IAS

GENERAL STUDIES

CSE Prelims Test Series (PTS): 2026

31st August, 2025 | Test-4 [Sectional Test]

Answer Key

1. (a)	21. (b)	41. (d)	61. (c)	81. (d)
2. (c)	22. (a)	42. (d)	62. (b)	82. (b)
3. (a)	23. (a)	43. (c)	63. (a)	83. (b)
4. (d)	24. (a)	44. (d)	64. (b)	84. (b)
5. (b)	25. (d)	45. (a)	65. (c)	85. (c)
6. (d)	26. (a)	46. (d)	66. (c)	86. (b)
7. (b)	27. (b)	47. (c)	67. (b)	87. (b)
8. (c)	28. (c)	48. (a)	68. (d)	88. (d)
9. (c)	29. (c)	49. (a)	69. (a)	89. (c)
10. (a)	30. (c)	50. (c)	70. (c)	90. (b)
11. (c)	31. (b)	51. (b)	71. (d)	91. (a)
12. (c)	32. (a)	52. (c)	72. (b)	92. (d)
13. (b)	33. (d)	53. (b)	73. (b)	93. (d)
14. (c)	34. (c)	54. (c)	74. (d)	94. (d)
15. (c)	35. (c)	55. (a)	75. (c)	95. (a)
16. (c)	36. (a)	56. (c)	76. (b)	96. (c)
17. (a)	37. (c)	57. (c)	77. (b)	97. (b)
18. (b)	38. (d)	58. (b)	78. (b)	98. (c)
19. (b)	39. (c)	59. (b)	79. (d)	99. (c)
20. (b)	40. (c)	60. (b)	80. (c)	100. (c)

DELHI CENTRE:
Vivekananda House
6-B, Pusa Road, Metro Pillar No. 111,
Near Karol Bagh Metro
New Delhi-110060
Phone: 8081300200

DELHI CENTRE:
Tagore House
27-B, Pusa Road, Metro Pillar No. 118,
Near Karol Bagh Metro
New Delhi-110060
Phone: 8081300200

DELHI CENTRE:
Mukherjee Nagar
637, Banda Bahadur Marg,
Mukherjee Nagar, Delhi-110009
Phone: 9311667076

PRAYAGRAJ CENTRE:
31/31 Sardar Patel Marg,
Civil Lines, Prayagraj
Uttar Pradesh-211001
Phone: 9958857757

JAIPUR CENTRE:
Plot No. 6 & 7, 3rd Floor,
Sree Gopal Nagar,
Gopalpura Bypass, Jaipur-302015
Phone: 9358200511

General Studies
Test-4

Sectional Test:

Physical Geography of the World, Human Geography and Current Affairs (April 2025)

1. (a)

- **Option (a) is the correct answer:**
  - Kochi follows Indian Standard Time (IST = GMT + 5:30) and does not observe daylight saving. London in September follows British Summer Time (BST = GMT + 1).
  - Hence, IST is 4 hours 30 minutes ahead of BST.
  - Webinar timing = 2:00 PM BST = 6:30 PM IST on 15th September.

2. (c)

- **Option (c) is the correct answer:** The **distribution of temperature of ocean water** is determined by the **latitudinal location of a place, unequal distribution of land & water, prevailing wind and ocean currents**.
- **In equatorial regions, heating by solar energy causes the water to expand.** That is why, **near the equator the ocean water is about 8 cm higher in level** than in the middle latitudes. This causes a **very slight gradient and water tends to flow down the slope**. This mechanism **generates the oceanic currents** in the equatorial regions.

3. (a)

- **Statement-I is correct: Shield volcanoes, like the Hawaiian volcanoes, are broad and gently sloping. Their low steepness is a defining feature.** Lava that forms them spreads out widely rather than piling up steeply.
- **Statement-II is correct:** Basaltic lava has low viscosity, so it flows easily over long distances. This fluid lava builds up in thin layers, creating the wide, gently sloping shape of shield volcanoes.
- Hence, Both statements are correct, and Statement-II **correctly explains** Statement-I.

4. (d)

- **A – Tea:** Location A corresponds to **Northeast India (Assam region)**, where the British introduced **tea plantations** during the colonial period. Assam and Darjeeling became globally famous for tea.
- **B – Cocoa:** Location B is in **West Africa (Ghana region)**, where Europeans established **cocoa plantations**. Ghana, Côte d'Ivoire, and Nigeria became major global producers of cocoa.
- **C – Rubber:** Location C corresponds to **Malaysia (Malay Peninsula)**, where the British introduced **rubber plantations** in the late 19th century. Malaysia, along with Indonesia, became leading producers of natural rubber.

5. (b)

- **About Savanna or Sudan Climate:** Savanna or Sudan climate is a transitional type of climate found between the equatorial forests and the trade wind hot deserts. It is confined within the tropics.
- **1 is correct:** The Savanna climate is characterised by an alternate hot, rainy season and cool, dry season. The annual rainfall is almost entirely concentrated in the summer.
- **2 is not correct:** In the Savanna region, days are hot, and during the hot season, noon temperatures of over 37°C are quite frequent. When night falls, the clear sky, which promotes intense heating during the day, also causes rapid radiation in the night. Temperatures drop to well below 10 °C. This extreme diurnal range of temperature is another characteristic feature of this climatic region.
- **3 is correct:** The prevailing winds of the region are the Trade Winds, which bring rain to the coastal districts. They are strongest in the summer but are relatively dry by the time they reach the continental interiors of the western coasts of the continents so that grass and scattered short trees predominate.

6. (d)

- **Pair 1 is correctly matched:** The **Strait of Hormuz** is a narrow passage connecting the

Persian Gulf with the **Gulf of Oman** (and then to the Arabian Sea).

- **Pair 2 is correctly matched:** The **Strait of Malacca** lies between the Malay Peninsula and Sumatra, connecting the **Indian Ocean (Andaman Sea)** with the **South China Sea**.
- **Pair 3 is correctly matched:** The **Bab-el-Mandeb Strait** connects the **Red Sea** to the **Gulf of Aden** (leading further into the Arabian Sea/Indian Ocean).

Additional information:

- A Strait is a naturally formed, narrow waterway that connects two larger bodies of water.
- Strait of Hormuz handles ~20% of the world's petroleum trade.
- Bab-el-Mandeb is strategically important as it controls entry to the Suez Canal route, linking Europe with Asia.

7. (b)

- **Option (b) is the correct answer:** Mediterranean Climate (Cs type in Köppen's classification) is being described in the given question.
  - **Location and latitude:** The Mediterranean climate occurs along the west coasts of continents in **subtropical latitudes between 30°–40° N/S** (for example, Mediterranean basin, central California, central Chile, south-west and south-east Australia).
  - **Seasonal pressure and winds:** These regions are under the influence of **subtropical high-pressure systems in summer and westerly winds in winter.** Consequently they have hot, dry summers and mild, rainy winters
  - **Vegetation:** The climate supports vegetation dominated by ***evergreen shrubs***, which is characteristic of Mediterranean (Cs) regions.
  - **Agriculture:** The climate supports viticulture (vineyards), citrus fruits, olives, and wheat cultivation, all typical Mediterranean crops.

8. (c)

- **About Thermohaline Circulations:** In the Earth's **polar regions** ocean water gets very cold, forming **sea ice**. As a consequence the **surrounding seawater gets saltier**. This is because when sea ice forms, the salt is left behind. As the seawater gets saltier, its **density increases, and it starts to sink**. **Surface water is pulled in to replace the sinking water**, which in turn eventually becomes cold and salty enough to sink. This **initiates the deep-ocean currents** known as **Thermohaline Circulations**, thereby driving the global conveyor belt.
- **Statement 1 is not correct and Statement 2 is correct:** Winds drive ocean currents in the upper 100 meters of the ocean's surface. However, ocean currents also flow thousands of meters below the surface. These **deep-ocean currents are driven by differences in the water's density, which is controlled by temperature (*thermo*) and salinity (*haline*)**. This process is known as **thermohaline circulation.**
- **Statement 3 is correct: Melting of polar ice** due to global warming would lead to **addition of large volumes of freshwater into the oceans, thereby reducing salinity**. This would lead to **lower density of the sea water** and hence **weaken the sinking process**. If the sinking would weaken, automatically the thermohaline circulations would also get weakened.

9. (c)

- **Statement 1 is correct:** When moisture is deposited in the form of water droplets on cooler surfaces of solid objects (rather than nuclei in air above the surface) such as stones, grass blades and plant leaves, it is known as dew. The ideal conditions for its formation are clear sky, calm air, high relative humidity, and cold and long nights. **For the formation of dew**, it is **necessary** that the **dew point is above the freezing point.**
- **Statement 2 is correct: Frost forms** on cold surfaces **when condensation takes place below freezing point**, i.e. the dew point is at or below the freezing point. The excess moisture is deposited in the form of minute ice crystals instead of water droplets. The ideal conditions for the formation of white frost are the same as those for the formation of dew, except that the air temperature must be at or below the freezing point.

10. (a)

- **Statements 1 and 2 are not correct:** Water vapour is a variable gas in the atmosphere, which **decreases with altitude.** In the warm and wet tropics, it may account for four per cent of the air by volume, while in the **dry and cold areas of desert and polar regions, it may be less than one per cent of the air.** Water vapour also decreases from the equator towards the poles.
- **Statement 3 is correct: Water vapor is Earth's most abundant greenhouse gas. It's responsible for about half of Earth's greenhouse effect** — the process that occurs when gases in Earth's atmosphere trap the Sun's heat. Greenhouse gases keep our planet livable. Without them, Earth's surface temperature would be about 59 degrees Fahrenheit (33 degrees Celsius) colder.

11. (c)

- **Statement 1 is not correct: Weathering** is defined as **mechanical disintegration and chemical decomposition of rocks through the actions of various elements of weather and climate.** Thus, it is an **exogenic geomorphic process.**
- **Statement 2 is correct:** Weathering processes are conditioned by many complex geological, climatic, topographic and vegetative factors. **As very little or no motion of materials takes place in weathering, it is an in-situ or on-site process.**
- **Statement 3 is correct: When rocks undergo weathering, some materials are removed through chemical or physical leaching by groundwater and thereby the concentration of remaining (valuable) materials increases.** This is what is called **enrichment**. Without such weathering taking place, the concentration of the same valuable material may not be sufficient and economically viable to exploit, process and refine. **Weathering** of rocks and deposits **helps in the enrichment and concentrations of certain valuable ores of iron, manganese, aluminium, copper** etc., which are of great importance for the national economy.

Additional information:

- **Endogenic geomorphic processes** are those which **derive their force from** the **energy emanating from within the earth**. This energy is mostly generated by **radioactivity, rotational and tidal friction and primordial heat** from the origin of the earth. Examples of Endogenic processes include the following:
  - **Orogenic processes** involving mountain building through severe folding and affecting long and narrow belts of the earth's crust
  - **Epeirogenic processes** involving uplift or warping of large parts of the earth's crust
  - **Earthquakes** involving local relatively minor movements
  - **Plate Tectonics** involving horizontal movements of crustal plates.
  - **Volcanism**
- **The exogenic processes** derive their energy from atmosphere determined by the ultimate energy from the sun and also the gradients created by tectonic factors.
  - Weathering, mass wasting, erosion and deposition are exogenic geomorphic processes.
  - All the exogenic geomorphic processes are covered under a general term, denudation. The word 'denude' means to strip off or to uncover. Weathering, mass wasting/ movements, erosion and transportation are included in denudation.

12. (c)

- **Pair 1 is not correctly matched:** Portugal lies on the western edge of the Iberian Peninsula, bordered by the **Atlantic Ocean**, not the Mediterranean. Spain lies between Portugal and the Mediterranean.
- **Pair 2 is correctly matched:** Jordan shares its western border with the **Dead Sea**, along with Israel and Palestine.
- **Pair 3 is correctly matched:** The **Aegean Sea** lies between the western coast of Turkey and Greece.
- **Pair 4 is correctly matched:** Egypt's eastern border touches the **Red Sea**, particularly along the Sinai Peninsula and eastern desert region.

Additional Information:

- Dead Sea is the lowest point on Earth (~430 m below sea level).
- The Aegean Sea has strategic importance due to straits connecting it with the Black Sea.
- The Red Sea is one of the busiest shipping routes, linked to the Mediterranean via the Suez Canal.

13. (b)

- **Statement 1 is correct:** Cirrus clouds are formed at high altitudes (8,000–12,000 m). They are thin, detached, feathery, and always white.
- **Statement 2 is not correct:** Cumulus clouds look like cotton wool, generally formed at 4,000–7,000 m, not very near the surface. They have a flat base and are not inherently dark.
- **Statement 3 is correct:** Stratus clouds are layered clouds covering large portions of the sky. They form due to loss of heat or mixing of air masses with different temperatures.
- **Statement 4 is correct:** Nimbus clouds are black or dark gray, extremely dense, and form at middle levels or near the surface, sometimes seeming to touch the ground.

Additional Information:

- Clouds are broadly classified based on their **altitude and appearance**:
- **High clouds (above 6 km):** Cirrus, Cirrostratus, Cirrocumulus
- **Middle clouds (2–6 km):** Altostratus, Altocumulus
- **Low clouds (below 2 km):** Stratus, Stratocumulus, Nimbostratus
- **Vertical development:** Cumulus, Cumulonimbus
- Cumulonimbus clouds, in particular, are associated with **thunderstorms, heavy rainfall, lightning, and even hail**.

14. (c)

- **Statement 1 is correct: High rainfall** supplies water for the reaction medium for **hydrolysis, hydration, oxidation, carbonation and solution.** Thereby **enhancing leaching** of bases and silica and accelerating **chemical weathering**.
- **Statement 2 is correct: Alternating wetting and drying** (common under seasonal rainfall) causes **slaking** of fine-grained rocks (e.g., shales), **expansion–contraction** of clay minerals, and **salt crystallisation** in pore spaces, all of which **promote mechanical disintegration**.

15. (c)

- **Statement I is correct:** The **insolation received by the earth is in short waves** forms and **heats up its surface. The earth after being heated itself becomes a radiating body** and it r**adiates energy to the atmosphere in long wave form. This energy heats up the atmosphere from below.** This process is known as **terrestrial radiation**. The long wave radiation is **absorbed by the** atmospheric gases particularly by carbon dioxide and the other **green house gases**. Thus, the atmosphere is indirectly heated by the earth's radiation.
- **Statement II is not correct:** The **atmosphere is largely transparent to short wave solar radiation**. The incoming solar radiation passes through the atmosphere before striking the earth's surface. On the other hand, the **atmosphere is opaque to the short-wave terrestrial radiation** that is emanated by the Earth.
- **Statement III is correct and correctly explains Statement I: Within the troposphere water vapour, ozone and other gases absorb much of the near infrared radiation.** These are referred to as **greenhouse gases**. They act as 'pockets of the atmosphere' and are largely **responsible for an increase in Earth's temperature**.

16. (c)

- The **distribution of temperature of ocean water is affected by** the following factors:
  - **Latitude**: the **temperature of surface water decreases from the equator towards the poles** because the amount of insolation decreases poleward. **Thus, 1 is correct.**
  - **Unequal distribution of land and water**: the **oceans in the northern hemisphere receive more heat due to their contact**

with larger extent of land than the oceans in the southern hemisphere. **Thus, 3 is correct.**

- **Prevailing wind**: the **winds blowing from the land towards the oceans drive warm surface water away from the coast** resulting in the **upwelling of cold water from below**. It results in the longitudinal variation in the temperature. Contrary to this, the **onshore winds pile up warm water near the coast** and this **raises the temperature. Thus, 4 is correct.**
- **Ocean currents**: **warm ocean currents raise the temperature in cold areas while the cold currents decrease the temperature in warm ocean areas.** For example, Gulf stream (warm current) raises the temperature near the eastern coast of North America and the West Coast of Europe while the Labrador current (cold current) lowers the temperature near the north-east coast of North America. **Thus, 5 is correct.**

- **2 is not correct:** Longitudinal location of a place by itself is **not a controlling factor for distribution of temperature of ocean water.** Any longitudinal variation arises indirectly due to currents/landmasses rather than the meridian position.

17. (a)

- **Context: 'One State, One RRB' Policy has been launched recently.** It is a strategic initiative led by the Department of Financial Services (DFS) under the Ministry of Finance. It aims to restructure and consolidate Regional Rural Banks (RRBs) in India.
- **Statement 1 is correct:** *Regional Rural Banks (RRBs)* were established in **1975** under the provisions of the **Ordinance promulgated on 26th September 1975**, and later under the **Regional Rural Banks Act, 1976** with a view to develop the **rural economy** and to create a **supplementary channel** to the *Cooperative Credit Structure* in order to enlarge **institutional credit** for the **rural and agriculture sector**.
- **Statement 2 is correct:** The **Government of India**, the **concerned State Government** and the **Sponsor Bank** contributed to the **share capital** of RRBs in the proportion of **50% : 15% : 35%**, respectively.
- **Statement 3 is not correct:** RRBs are regulated by both the Reserve Bank of India (RBI) and the NABARD. While RBI is the primary regulator of banking functions, NABARD plays a crucial role in supervision of RRBs.

18. (b)

- **Statement 1 is correct: Artemis Accords were established in 2020 primarily by NASA and seven other initial signatory nations**. With many countries and private companies conducting missions and operations around the Moon, the Artemis Accords **provide a common set of principles to enhance the governance of the civil exploration and use of outer space**.
- **Statement 2 is not correct:** Grounded in the Outer Space Treaty of 1967 (OST), the **Artemis Accords are a non-binding set of principles designed to guide civil space exploration** and use in the 21st century.
- **Statement 3 is correct: India has signed the Artemis Accord** on June 21, **2023**, becoming the 27th signatory.
- **Additional information: The Artemis Accords reinforce the commitment** by signatory nations **to the Outer Space Treaty, the Registration Convention, the Rescue and Return Agreement**, as well as best practices and norms of responsible behavior for civil space exploration and use.

19. (b)

- **Context:** The **Kokborok Sahitya Parishad** has recently **sought the inclusion of the Kokborok language in the Eighth Schedule of the Constitution.** It said that despite the language's rich heritage and widespread usage, the language is yet to receive constitutional recognition, which is crucial for its preservation, development, and promotion at a national level.
- **Kokborok is one of the oldest and most widely spoken languages among the indigenous communities of Tripura.** It serves as a vital medium of cultural expression, history, and identity for the tribal population. The **Kokborok Sahitya Parishad** stated that

the script for the Kokborok language can either be Bengali or Devanagari.

20. (b)

- **Option (b) is the correct answer: Process of formation of island arc is as follows:**
  - **Origin:** When two oceanic plates converge, the denser plate subducts beneath the lighter plate.
  - **Magma Generation:** The subducted plate melts due to high temperature and pressure, producing magma.
  - **Volcanic Activity:** Magma rises through the overriding plate, leading to volcanic eruptions.
  - **Landform:** A chain of volcanic islands forms parallel to the trench — called an island arc.
  - Examples: Mariana Islands, Japan, Philippines.

21. (b)

- **Statement 1 is correct:** A minimum sea surface temperature (SST) of 27°C is essential for the development of a tropical cyclone. Warm ocean waters supply abundant moisture and latent heat, which serve as the primary energy source for the system. As warm, moist air ascends from the ocean surface, it cools and condenses, releasing latent heat in the process. This released heat further warms the surrounding air, reducing its density and enhancing upward motion, thereby sustaining a continuous cycle of rising air and energy release.
- **Statement 2 is correct:** The Coriolis force plays a crucial role in initiating the rotational motion of a tropical cyclone. Generated by the Earth's rotation, it deflects moving air to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. This deflection organizes the converging air into a rotating system. Since the Coriolis effect is negligible near the equator (within about 5° latitude), cyclones are unable to develop in that region.
- **Statement 3 is not correct:** Strong vertical wind shear acts as an inhibiting factor for the formation of tropical cyclones. Wind shear refers to the variation in wind speed or direction with height. When vertical wind shear is intense, it disturbs the storm's vertical alignment, hindering the upward transfer of heat and moisture in a focused column. This causes the system to "tilt," dispersing latent heat release and preventing the cyclone from achieving proper organization and strengthening.
- **Statement 4 is correct:** A **pre-existing low-pressure area** helps in the convergence of air and triggers cyclonic circulation.

22. (a)

- **A-3 is the correct pair:** The **Sahara Desert** is the world's largest hot desert, covering much of North Africa, including **Egypt, Sudan, Libya, Algeria, Morocco, etc.**
- **B-1 is the correct pair:** The **Atacama Desert** lies along the western coast of **Chile** and extends slightly into southern **Peru**.
- **C-4 is the correct pair:** The **Gobi Desert** is a cold desert spanning **northern China** and southern **Mongolia**.
- **D-2 is the correct pair:** The **Kalahari Desert** covers parts of **Namibia, Botswana, and South Africa**.

23. (a)

- **Statement 1 is correct: Warming and cooling of the Pacific Ocean** is most **important in terms of general atmospheric circulation**. The **warm water of the central Pacific Ocean slowly drifts towards the South American coast and replaces the cool Peruvian current**. Such appearance of warm water off the coast of Peru is known as the **El Nino**.
- **Statement 2 is not correct:** During normal conditions in the Pacific ocean, trade winds blow west along the equator, taking warm water from South America towards Asia. To replace that warm water, cold water rises from the depths — a process called upwelling. **During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas.**
- **Statement 3 is not correct:** In the years **when the El Nino is strong, large-scale variations in weather occur over the world.** The arid west coast of South America receives heavy rainfall, **drought occurs in Australia and sometimes in India** and floods in China.

24. (a)

- **Both Statement-I and Statement-II are correct and Statement-II correctly explains Statement-I: Mass movements transfer the mass of rock debris down the slopes under the direct influence of gravity**. That means, **air, water or ice do not carry debris with them from place to place** but on the other hand the **debris may carry with it air, water or ice.** Mass movements may range from slow to rapid, affecting shallow to deep columns of materials and include creep, flow, slide and fall.
- **Mass movements are aided by gravity** and **no geomorphic agent** like running water, glaciers, wind, waves and currents **participate in the process of mass movements.**

25. (d)

- **Option (d) is the correct answer:** 22nd December is the Winter Solstice in the Northern Hemisphere. The Sun is vertically overhead at the Tropic of Capricorn (23.5°S), tilted maximally towards the south. Thus, it marks the longest day in the Southern Hemisphere and the shortest day in the Northern Hemisphere.
- **Option (a) is not correct: 21st March** is the **Vernal Equinox**, when the Sun is directly over the equator; day and night are nearly equal in both hemispheres.
- **Option (b) is not correct:** 21st June is the **Summer Solstice in the Northern Hemisphere**, when the Sun is overhead at the Tropic of Cancer; this gives the **longest day in the Northern Hemisphere** and the shortest in the Southern Hemisphere.
- **Option (c) is not correct:** 22nd September is the **Autumnal Equinox**, when the Sun is again over the equator; day and night are nearly equal in both hemispheres.

Additional Information:

- On **Equinoxes (21st March and 22nd September)**, both hemispheres receive equal sunlight.
- On **Solstices (21st June and 22nd December)**, one hemisphere tilts maximally towards or away from the Sun, leading to longest/shortest days

26. (a)

- **Statement 1 is not correct:** The Coriolis force is absent at the equator and reaches its maximum at the poles. Its intensity varies with latitude, becoming stronger as one moves away from the equator toward either pole. Consequently, tropical cyclones cannot develop close to the equator (within about 5° latitude), as the Coriolis effect there is too weak to generate the required rotational motion.
- **Statement 2 is not correct:** Coriolis force acts **perpendicular to the direction of motion** of an object. Therefore, it only **changes the direction of winds** but not their **speed**. The speed of winds is influenced by **pressure gradient force, friction, and centrifugal force**, not by Coriolis effect.
- **Statement 3 is correct:** Due to the Earth's rotation, the Coriolis force causes a deflection. In the Northern Hemisphere, it deflects moving objects (like winds and ocean currents) to the right. In the Southern Hemisphere, it deflects them to the left.

27. (b)

- **Layers of atmosphere:** The atmosphere consists of different layers with varying density and temperature. Density is highest near the surface of the earth and decreases with increasing altitude. The column of atmosphere is divided into five different layers depending upon the temperature condition. They are: troposphere, stratosphere, mesosphere, thermosphere and exosphere.
- **Statement 1 is correct and Statement 3 is not correct:**
  - The troposphere is the lowermost layer of the atmosphere. Its average height is 13 km and extends roughly to a height of 8 km near the poles and about 18 km at the equator. **Thickness of the troposphere is greatest at the equator because heat is transported to great heights by strong convectional currents. This layer contains dust particles and water vapour. All changes in climate and weather take place in this layer.** The temperature in this layer decreases at the rate of 1 C for every

165m of height. This is the most important layer for all biological activity.

- **Statement 2 is not correct:** The ionosphere is located between 80 and 400 km above the mesopause. It contains electrically charged particles known as ions, and hence, it is known as ionosphere. **Radio waves transmitted from the earth are reflected back to the earth by the ionosphere.**

28. (c)

- **Statement 1 is correct:** The **Suez Canal**, located in **Egypt**, is an artificial sea-level waterway that stretches about **193 km**. It directly links the **Mediterranean Sea (Port Said)** with the **Red Sea (Suez)**, providing the shortest maritime route between **Europe and Asia**. The canal avoids the long and costly journey around the **Cape of Good Hope** in Africa.
- **Statement 2 is correct:** The **Panama Canal**, located in **Central America (Panama)**, is about **82 km long**. It connects the **Atlantic Ocean (via the Caribbean Sea)** with the **Pacific Ocean**, drastically reducing travel distance for ships that would otherwise have to sail around **South America's Cape Horn**. It is one of the most important strategic waterways in the world for **global maritime trade**.

29. (c)

- **Pair 1 is correctly matched:** The Tarapur Atomic Power Station is located in the Palghar district of Maharashtra. It was India's first nuclear power plant, commissioned in 1969.
- **Pair 2 is correctly matched:** Kalpakkam nuclear power plant is situated in Tamil Nadu. Recently, the core loading of India's first indigenous Fast Breeder Reactor (500 MWe) was started at Kalpakkam, Tamil Nadu.
- **Pair 3 is not correctly matched:** Narora Atomic Power Station is located in Uttar Pradesh, not Rajasthan. The nuclear power plant in Rajasthan is the Rajasthan Atomic Power Station, located in Rawatbhata.
- **Pair 4 is correctly matched:** Kaiga Atomic Power Station is located in Karnataka.
- **Additional Information:** Other important nuclear power projects in India include:
  - Rawatbhata (Rajasthan)
  - Kakrapar (Gujarat)
  - Kudankulam (Tamil Nadu)
  - Kalpakkam (Tamil Nadu)
  - Narora (Uttar Pradesh)

30. (c)

- **Statement 1 is correct:** Every waqf registered under this Act, prior to the commencement of the Waqf (Amendment) Act, 2025, shall file the details of the waqf and the property dedicated to the waqf on the portal and database, within a period **of six months from such commencement.**
- **Statement 2 is correct:** The Act stipulates that only individuals who have been practicing Islam for at least five years are eligible to dedicate property as Waqf. This provision was reintroduced to ensure the genuineness of Waqf donations and to prevent misuse.
- **Statement 3 is correct:** The Act clarifies that Muslim-created trusts, irrespective of the laws under which they are established, will no longer be considered Waqf. This distinction ensures that Waqf properties are managed separately from other charitable trusts.

31. (b)

- **Option (b) is the correct answer:** Heard and McDonald Islands have recently been in the news due to the U.S. government, under the Trump administration, imposing a 10% tariff on goods from them. This action garnered international attention because the islands are a remote, uninhabited Australian external territory with no economic exports.
- **About Heard and McDonald Islands:**
  - Heard and McDonald Islands are remote sub-Antarctic volcanic islands located in the southern Indian Ocean about half-way between Australia and South Africa
  - As the only volcanically active subantarctic islands they 'open a window into the earth', thus providing the opportunity to observe ongoing geomorphic processes and glacial dynamics.
  - The distinctive conservation value of Heard and McDonald – one of the world's rare pristine island ecosystems – lies in

the complete absence of alien plants and animals, as well as human impact.

- ♦ Have been inscribed as a UNESCO World Heritage site

32. (a)

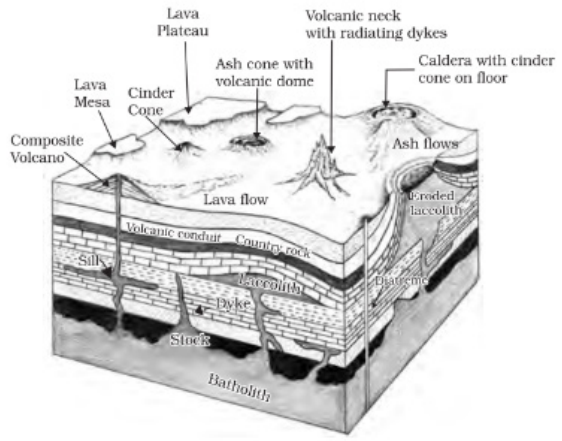
- **Context:** The year 2025 marks 10 years of the Pradhan Mantri MUDRA Yojana (PMMY). Pradhan Mantri Mudra Yojana (PMMY), the Flagship Programme of the Prime Minister aimed at Funding the Unfunded micro enterprises and small businesses.
- **Statement 1 is correct:** Pradhan Mantri Mudra Yojana (PMMY) under the Micro Units Development and Refinancing Agency (MUDRA) was set up by Government of India for development and refinancing activities relating to micro units. PMMY ensures collateral-free institutional credit up to Rs 20 lakh is provided by Member Lending Institutions (MLIs) i.e. Scheduled Commercial Banks (SCBs), Regional Rural Banks (RRBs), Non-Banking Financial Companies (NBFCs) and Micro Finance Institutions (MFIs).
- **Statement 2 is correct:** The various interventions under MUDRA **have been named 'Shishu', 'Kishor' , 'Tarun' and 'Tarun Plus' to signify the stage of growth / development and funding needs of the beneficiary** micro unit / entrepreneur and also to provide a reference point for the next phase of graduation / growth to look forward to. The financial limit for these schemes are:-
  a. Shishu : covering loans upto 50,000/-
  b. Kishor : covering loans above 50,000/- and upto 5 lakh
  c. Tarun : covering loans above 5 lakh to 10 lakh
  d. Tarun Plus : covering loans above 10 lakh to 20 lakh (for those entrepreneurs who have availed and successfully repaid previous loans under the 'Tarun' category).
- **Statement 3 is not correct:** Nodal Agency for the implementation is the Department of Financial Services, Ministry of Finance.

33. (d)

- The given passage describes Atoll. An atoll is a ring-shaped coral reef, island, or series of islets that nearly or entirely encloses a lagoon. They typically form when a coral reef grows upward around a sinking volcanic island. Over time, the volcano subsides beneath the sea's surface, leaving behind the ring of coral. The enclosed body of water is known as a lagoon.
- **Additional information:**
  - ♦ **Submarine canyons** are deep valleys, some comparable to the Grand Canyon of the Colorado river. They are sometimes found cutting across the continental shelves and slopes, often extending from the mouths of large rivers. The Hudson Canyon is the best known submarine canyon in the world.
  - ♦ **Guyot** is a flat topped seamount. They show evidences of gradual subsidence through stages to become flat topped submerged mountains. It is estimated that more than 10,000 seamounts and guyots exist in the Pacific Ocean alone.
  - ♦ **Seamount** is a mountain with pointed summits, rising from the seafloor that does not reach the surface of the ocean. Seamounts are volcanic in origin. These can be 3,000-4,500 m tall. The Emperor seamount, an extension of the Hawaiian Islands in the Pacific Ocean, is a good example

34. (c)

- **Pair 1 is not correctly matched:** As and when the molten lava moves upwards, a portion of the same may tend to move in a **horizontal direction wherever it finds a** weak plane. When it cools down and develops into a **saucer shaped, concave to the sky body, it is called lapolith.**
- **Pair 2 is not correctly matched: Batholiths are massive bodies of magmatic material** that form into huge domes as they cool in **the deeper layers of the crust.**
- **Pair 3 is not correctly matched: Depending on the material's thickness, the near horizontal bodies of intrusive igneous rocks are referred to as sill or sheet.** While the large horizontal deposits are known as sills, the thinner ones are referred to as sheets.



35. (c)

- **Statement 1 is correct:** A total solar eclipse happens when the Moon moves directly in line between the Earth and the Sun, completely covering the Sun's visible disk from a particular spot on Earth. For this event, the Sun, Moon, and Earth must be precisely aligned, and the Moon's apparent size in the sky must be sufficient to obscure the Sun entirely. This alignment causes the Moon to cast a shadow on Earth, and observers located within the central, darkest region of that shadow (the umbra) witness the eclipse in its totality.
- **Statement 2 is correct:** The solar corona is the Sun's outermost plasma layer — a highly heated atmosphere stretching millions of kilometers into space. Under normal conditions, it remains hidden by the intense brightness of the Sun's photosphere. However, during a total solar eclipse, when the Moon completely blocks the Sun's luminous disk, the corona emerges into view. It appears as a faint, silvery-white halo surrounding the darkened Sun, creating one of the most striking and characteristic sights of a total solar eclipse.

36. (a)

- **Context: Manuscripts of the Bhagavad Gita and Bharat Muni's Natyashastra** are among 74 new documentary heritage collections that have been added to UNESCO's Memory of the World Register as of April 2025.
- The **Bhagavad Gita**, a part of the Indian epic Mahabharata, has been recognized and inscribed in **UNESCO's Memory of the World Register** for its **immense cultural and historical significance**. It represents India's ancient philosophical and literary heritage.
- **Bharat Muni's Natyashastra**, an ancient treatise on **performing arts, drama, and theatre**, has also been inscribed in UNESCO's **Memory of the World Register** as a recognition of India's contribution to **classical art and cultural theory**.

37. (c)

- **Context: Prime Minister Shri Narendra Modi chaired a meeting of the 46th edition of PRAGATI,** an ICT-based multi-modal platform for Pro-Active Governance and Timely Implementation, involving Centre and State governments.
- **Statement (a) is correct:** PRAGATI (Pro-Active Governance and Timely Implementation) is chaired by the Prime Minister, generally once every month.
- **Statement (b) is correct:** It enables real-time simultaneous interaction with Central Secretaries and State Chief Secretaries/District officials through video-conferencing.
- **Statement (c) is not correct:** PRAGATI is not administered by **NITI Aayog**. It is an initiative of the **Prime Minister's Office (PMO)**, with technical support from the **National Informatics Centre (NIC)**.
- **Statement (d) is correct:** Its purpose is to address both **public grievances** (via CPGRAMS, etc.) and **project delays** (through project monitoring).

38. (d)

- Ocean currents are categorized as either warm or cold based on their temperature relative to the surrounding water.
- **1 is correct**: **Peru (Humboldt) Current** is a **cold current** that flows north along the western coast of South America. It's known for bringing cold, nutrient-rich water from the deep ocean to the surface, which supports one of the world's most productive marine ecosystems.
- **2 is not correct:** Alaska current is a **warm current** that is an offshoot of the North Pacific Current. It flows northward along the coast of British Columbia and Alaska, bringing

warmer water to these high-latitude regions and contributing to their relatively mild climates.

- **3 is correct:** is a **cold current** that flows southward along the western coast of North America, from British Columbia down to Baja California. It's responsible for the cooler temperatures and frequent coastal fog along the U.S. West Coast.
- **4 is correct:** Labrador is a **cold current** that flows south from the Arctic Ocean along the coast of Labrador and Newfoundland. It's famous for transporting icebergs into the North Atlantic shipping lanes.

39. (c)

- **1, 2, 3 and 4 are correct:** The earth's surface receives most of its energy in short wavelengths. The energy received by the earth is known as incoming solar radiation which in short is termed as insolation. The amount and the intensity of insolation vary during a day, in a season and in a year. The factors that cause these variations in insolation are :
  (i) the rotation of earth on its axis;
  (ii) the angle of inclination of the sun's rays;
  (iii) the length of the day;
  (iv) the transparency of the atmosphere;
  (v) the configuration of land in terms of its aspect. The last two however, have less influence.
- **5 is not correct:** The direction of the wind influences temperature and local weather but does not directly control the amount of insolation received.

40. (c)

- **About Primitive Subsistence Agriculture:**
  - Primitive subsistence agriculture or shifting cultivation is widely practised by many tribes in the tropics, especially in Africa, south and central America and south east Asia
  - The vegetation is usually cleared by fire, and the ashes add to the fertility of the soil. Shifting cultivation is thus, also called slash and burn agriculture.
  - The cultivated patches are very small and cultivation is done with very primitive tools such as sticks and hoes. After sometime (3 to 5 years) the soil looses its fertility and the farmer shifts to another parts and clears other patch of the forest for cultivation.
  - The farmer may return to the earlier patch after sometime. One of the major problems of shifting cultivation is that the cycle of jhum becomes less and less due to loss of fertility in different parcels.
- **Pair 1 is correct:** In **North-Eastern India**, shifting cultivation is locally called **Jhum**.
- **Pair 2 is correct:** In **Mexico**, shifting cultivation is known as **Milpa**.
- **Pair 3 is correct:** In **Indonesia**, it is called **Ladang**.
- **Pair 4 is correct:** In the **Philippines**, the local name is **Kaingin**.
- **Pair 5 is not correct:** In **Myanmar**, shifting cultivation is called **Taungya**.
- **Additional information:** In Myanmar, shifting cultivation is known as Taungya.
  - Other local names: **Conuco (Venezuela), Roca (Brazil), Masole (Central Africa), Chitemene (Zambia), Tavy (Madagascar)**.

41. (d)

- **Option (d) is the correct answer: HEALD (Healthy Liver Education and Alcohol-associated Liver Disease Prevention) initiative** focuses on **awareness, early detection, prevention, and management of alcohol-associated liver disease**, along with reducing stigma through education, screening, medical/psychological support, and policy integration.
- It has been launched by the Institute of Liver and Biliary Sciences (ILBS) on World Liver Day. The initiative integrates mental health support, community outreach, and policy reform into liver care.

42. (d)

- **Pair 1 is correctly matched:** Exercise INDRA is a bilateral exercise between India and Russia. The 14th edition (2025) was conducted recently involving naval drills to enhance interoperability against common maritime threats.

- **Pair 2 is correctly matched: Exercise DUSTLIK** is a joint military exercise between **India and Uzbekistan**. The 6th edition (2025) was held at **Foreign Training Node, Aundh (Pune)**, with participation of the **JAT Regiment (India)** and **Uzbekistan Army**.
- **Pair 3 is correctly matched:** Exercise Tiger Triumph is a bilateral tri-service Humanitarian Assistance and Disaster Relief (HADR) exercise between India and the United States. The 4th edition (2025) recently took place at Kakinada.
  - Ex Tiger Triumph was first held in 2019, with the primary aim of strengthening operational synergies, facilitated by logistics exchange under the Logistics Exchange Memorandum of Agreement (LEMOA) and towards integrating emerging technologies between the two militaries.

43. (c)

- **Statement 1 is correct**: The continental shelf is the extended margin of each continent occupied by relatively shallow seas and gulfs. It is the shallowest part of the ocean. The shelf typically ends at a very steep slope, called the shelf break.
- **Statement 2 is not correct**: The continental shelf has an average gradient of 1° or even less. The continental slope connects the continental shelf and the ocean basins. It begins where the bottom of the continental shelf sharply drops off into a steep slope. The gradient of the slope region varies between 2-5°.
- **Statement 3 is correct:** The continental shelves are covered with variable thicknesses of sediments brought down by rivers, glaciers, wind, from the land and distributed by waves and currents. Massive sedimentary deposits received over a long time by the continental shelves, become the source of fossil fuels.

44. (d)

- **Option (d) is the correct answer**: The mechanism described is Advection, i.e., transfer of heat through the horizontal movement of air. Horizontal movement of the air is relatively more important than the vertical movement. In middle latitudes, most of diurnal (day and night) variation in daily weather are caused by advection alone. In tropical regions particularly in northern India during summer season local winds called 'loo' is the outcome of the advection process.
- **Other mechanisms of heating and cooling:**
  - **Conduction:** It is the transfer of heat between two bodies of unequal temperature in contact. The earth after being heated by insolation transmits the heat to the atmospheric layers near to the earth in long wave form. The air in contact with the land gets heated slowly and the upper layers in contact with the lower layers also get heated. This process is called conduction.
  - **Convection:** Vertical transfer of heat through rising air currents. Warm air near the surface rises, carrying heat upwards. This process is confined mainly to the **troposphere**.

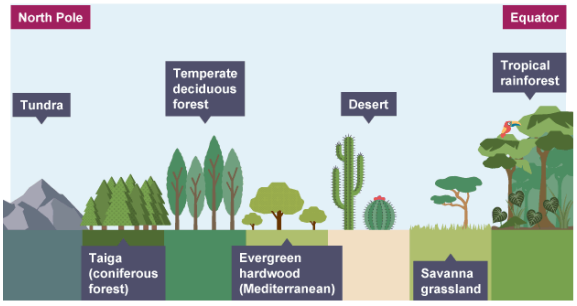
45. (a)

- **Statement 1 is correct:** The **Taiga biome (coniferous forest)** is mainly found in **Scandinavia, Russia and Canada**. It is dominated by evergreen coniferous trees and adapted to cold temperate conditions.
- **Statement 2 is not correct: Temperate deciduous forests** are not adapted to hot and dry climates. They thrive in **mild and wet conditions** (temperate maritime climate) across Europe and the USA.
- **Statement 3 is correct: Savanna grasslands** are found mainly in **central Africa, southern India, northern Australia and central South America**. They are characterised by **long grasses and scattered trees** in hot and dry conditions.

Additional Information

- **Tundra:** Found near the poles; very limited vegetation and animal life.
- **Temperate Grasslands:** Found in Hungary, South Africa, Argentina, USA — dominated by grass with moderate rainfall.
- **Chaparral (Mediterranean):** Found around Mediterranean Sea, Perth, Melbourne, California — evergreen shrubs/trees adapted to dry summers.

- **Tropical Rainforest:** Found near the Equator; hot, humid, with maximum biodiversity.



46. (d)

- **1 is correct:** Cirques are the most common of landforms in glaciated mountains. The cirques quite often are found at the heads of glacial valleys. The accumulated ice cuts these cirques while moving down the mountain tops. They are deep, long and wide troughs or basins with very steep concave to vertically dropping high walls at its head as well as sides.
- **2 is correct:** There can be hanging valleys at an elevation on one or both sides of the main glacial valley. The faces of divides or spurs of such hanging valleys opening into main glacial valleys are quite often truncated to give them an appearance like triangular facets. Very deep glacial troughs filled with sea water and making up shorelines (in high latitudes) are called fjords/fiords.
- **3 is not correct:** Plains are by far the most prominent landforms in the deserts. In basins with mountains and hills around and along, the drainage is towards the centre of the basin and due to gradual deposition of sediment from basin margins, a nearly level plain forms at the centre of the basin. In times of sufficient water, this plain is covered up by a shallow water body. Such types of shallow lakes are called as playas where water is retained only for short duration due to evaporation and quite often the playas contain good deposition of salts. The playa plain covered up by salts is called alkali flats. These are landforms resulting from the activity of Winds in arid regions.
- **4 is not correct**: Crescent shaped dunes called barchans with the points or wings directed away from wind direction i.e., downwind, form where the wind direction is constant and moderate and where the original surface over which sand is moving is almost uniform. These are landforms resulting from the activity of Winds in arid regions.
- **5 is correct:** Moraines are long ridges of deposits of glacial till. Terminal moraines are long ridges of debris deposited at the end (toe) of the glaciers. Lateral moraines form along the sides parallel to the glacial valleys. The lateral moraines may join a terminal moraine forming a horse-shoe shaped ridge. There can be many lateral moraines on either side in a glacial valley. These moraines partly or fully owe their origin to glacio-fluvial waters pushing up materials to the sides of glaciers.

47. (c)

- **Pair 1 is correctly matched:** The **Danube River** is Europe's second-longest river. It flows through multiple countries in Central and Eastern Europe (Germany, Austria, Hungary, Romania, etc.). Finally, it **drains into the Black Sea** through the Danube Delta in Romania and Ukraine.
- **Pair 2 is correctly matched:** The **Volga River** is the **longest river in Europe**. It flows entirely through Russia. Instead of flowing into an ocean, it empties into the **Caspian Sea** (which is the world's largest inland water body, technically a lake).
- **Pair 3 is correctly matched:** The **Zambezi River** flows through southern Africa (Zambia, Angola, Zimbabwe, Mozambique). Famous for **Victoria Falls**. Finally, it empties into the **Indian Ocean** via Mozambique Channel.

48. (a)

- **Statement 1 is correct:** A tectonic plate (also called lithospheric plate) is a massive, irregularly-shaped slab of solid rock, generally composed of both continental and oceanic lithosphere. A plate may be referred to as the continental plate or oceanic plate depending on which of the two occupy a larger portion of the plate. Both **continental plates and oceanic plates float and move horizontally over the asthenosphere** as rigid units.
- **Statement 2 is correct:** The movement of lithospheric plates is primarily driven by

convection currents in the mantle. Heated material rises, spreads at the surface, cools, and sinks back — forming **convection cells** that generate plate motion. Heat within the earth comes from two main sources: radioactive decay and residual heat.

- **Statement 3 is not correct:** At **transform boundaries**, crust is neither created nor destroyed. Instead, plates slide **horizontally past each other** (e.g., **San Andreas Fault**). New crust is produced at **divergent boundaries (mid-oceanic ridges)**, not at transform faults.

Additional Information:

- The **Plate Tectonic Theory** was proposed in **1967** by McKenzie, Parker, and Morgan as a unifying concept combining **continental drift and seafloor spreading**.
- TThe lithosphere includes the crust and top mantle with its thickness range varying between 5 and100 km in oceanic parts and about 200 km in the continental areas.

49. (a)

- **Statement 1 is correct: Launched in April 2020**, SVAMITVA (Survey of Villages and Mapping with Improvised Technology in Village Areas) provides legal ownership of rural residential land using drone-based surveys. It aims to empower rural citizens with property cards, enabling access to credit, dispute resolution, and better planning.The detailed objectives of the schemes are as follows:
  - **Creation of accurate land records for rural planning and reduce property related disputes.**
  - To bring financial stability to the citizens in rural India by enabling them to use their property as a financial asset for taking loans and other financial benefits.
  - Determination of property tax, which would accrue to the GPs directly in States where it is devolved or else, add to the State exchequer.
  - Creation of survey infrastructure and GIS maps that can be leveraged by any department for their use.
  - To support the preparation of a better-quality Gram Panchayat Development Plan (GPDP) by making use of GIS maps.
- **Statement 2 is not correct:** SVAMITVA was implemented by the **Ministry of Panchayati Raj** with support from **Survey of India** and **National Informatics Centre Services Inc. (NICSI)**.

50. (c)

- **Context:** The Central Pollution Control Board (CPCB) has directed state pollution control boards to adopt a revised classification of industries with a new category, blue, for "essential environmental services" such as those engaged in maintaining landfills or biomining.
- **About CPCB's classification of industries**:
  - In order to harmonise the 'criteria of categorisation', a Pollution Index (PI) was introduced which is a function of the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources.
  - The PI is a number between '0' and '100'.
  - As per the revised methodology, the category of the sector is decided based on the following ranges of Pollution Index:
    - Red: PI $\geq$ 80
    - Orange: 55 $\leq$ PI < 80
    - Green: 25 $\leq$ PI < 55 and
    - White: PI < 25;
- **Blue category: Blue Category projects refer to Essential Environmental Services designed to manage pollution arising from domestic (household) as well as industrial activities (Hence, Option (c) is the correct answer)**. Essential Environmental Services may be defined as those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. Examples of Blue category projects includes:
  - Common Effluent Treatment Plants (CETPs)
  - Common Hazardous Waste Treatment, Storage and Disposal Facilities (CHWTSDFs)
  - Effluent conveying systems
  - Sewage Treatment Plants (STPs) and Municipal Solid Waste (MSW) management facilities

- ♦ Composting units and Biogas plants
- ♦ Material recovery facilities

51. (b)

- **Context: The Crown Prince of the UAE paid an official visit to India in April, reinforcing the growing strategic partnership between the two nations. India and UAE both are members of I2U2.**
- **Option (b) is the correct answer: I2U2** comprises **India, Israel, UAE, and USA**. It was first conceptualized in October 2021 during the meeting of Foreign Ministers of the four countries, and its first **Leaders' Summit was held in July 2022**. It is an **informal economic grouping** focused on **joint investments and technology cooperation** in sectors like food security, energy, water, transportation, space, health, and emerging technologies.

52. (c)

- **Context: The Ministry of Electronics and Information Technology (MeitY) launched the first-ever Digital Threat Report 2024. And** The government recently authorised Indian Cyber Crime Coordination Centre (I4C) to share and receive information from the Enforcement Directorate under the anti-money laundering law, a move aimed at detecting money trails and combating cyber frauds I4C has been established under the Ministry of Home Affairs (MHA).
- **Statement 1 is correct:** The **Digital Threat Report (DTR)** is primarily a publication prepared by **CERT-In (Indian Computer Emergency Response Team)** under the Ministry of Electronics and Information Technology (MeitY). There is **no official mention of CSIRT-Fin or a Strategic Information Services Agreement (SISA)** as collaborators in the Digital Threat Report.
- **Statement 2 is correct:** The report provides a **comprehensive analysis of emerging cyber risks, attack tactics, and vulnerabilities**, helping organizations and policymakers to strengthen cybersecurity preparedness. It includes **trends in malware, phishing, ransomware, and other digital threats** observed during the reporting period.

53. (b)

- **Statement 1 is not correct**: The periodical rise and fall of the sea level, once or twice a day, **mainly due to the attraction of the sun and the moon**, is called a tide. **Movement of water caused by meteorological effects (winds and atmospheric pressure changes) are called surges. Surges are not regular like tides.**
- **Statement 2 is correct:** The moon's gravitational pull to a great extent and to a lesser extent the sun's gravitational pull, are the major causes for the occurrence of tides. Another factor is centrifugal force, which is the force that acts to counter balance the gravity. **Together, the gravitational pull and the centrifugal force are responsible for creating the two major tidal bulges on the earth.** On the side of the earth facing the moon, a tidal bulge occurs while on the opposite side though the gravitational attraction of the moon is less as it is farther away, the centrifugal force causes tidal bulge on the other side.

54. (c)

- **Statement 1 is correct:** The major coffee-producing and trading nations — such as Brazil, Colombia, Vietnam, Ethiopia, and Indonesia — are all located within the tropical regions between the Tropic of Cancer and the Tropic of Capricorn.
- **Statement 2 is correct:** Coffee requires warm and wet climate and welldrained loamy soil. Hill slopes are more suitable for the growth of this crop. Brazil is the leading producer followed by Columbia and India.
- **Additional information:** India's coffee is primarily grown in the ecologically rich Western and Eastern Ghats, areas famous for their biodiversity. Karnataka leads in production, contributing 248,020 MT in 2022-23, followed by Kerala and Tamil Nadu.

55. (a)

- **Statement-I is correct:** The Grand Banks, off the coast of Newfoundland (Canada), are among the richest fishing grounds in the world, historically famous for cod and other fish species.
- **Statement-II is correct and correctly explains Statement I:** The **convergence of**

the cold Labrador Current and the warm Gulf Stream causes **upwelling and nutrient enrichment**, leading to a surge in **plankton**, which forms the base of the marine food chain. This high plankton density supports the abundance of fish.

56. (c)

- **Context:** India is working on its first-ever 'tailings policy' that will help recover critical minerals from secondary sources, including scalings and mining waste.
- **Option (c) is the correct answer:** Tailings are a by-product of mining. After ore containing an economically-recoverable commodity is mined from the earth, that commodity is extracted in a processing plant or mill. After the commodity of value is extracted from the ore material, the resultant waste stream is termed "tailings".
- These tailings can be a significant source of some critical minerals. Developing a 'tailing policy' will help India recover critical minerals from these wastes.

57. (c)

- **Statement 1 is correct:** The oceans in the northern hemisphere record relatively higher temperatures than in the southern hemisphere. The average annual temperatures for the northern and southern hemispheres are around 19° C and 16° C, respectively. This variation is due to the unequal distribution of land and water in the northern and southern hemispheres.
- **Statement 2 is correct:** The maximum temperature of the oceans is always at their surfaces because they directly receive the heat from the sun, and the heat is transmitted to the lower sections of the oceans through the process of convection.
- **Additional information:**
  - The temperature of oceans decreases with increasing depth, but the rate of decrease is not uniform throughout. The temperature falls very rapidly up to the depth of 200 m, and thereafter, the rate of decrease of temperature is slowed down
  - There exists a boundary region between the surface waters of the ocean and the deeper layers. The boundary usually begins around 100 - 400 m below the sea surface and extends several hundred metres downward. This boundary region, from where there is a rapid decrease in temperature, is called the **thermocline**.

58. (b)

- **Option (b) is the correct answer:** Tides vary in their frequency, direction and movement from place to place and also from time to time. Tides may be grouped into various types based on their frequency of occurrence in one day or 24 hours or based on their height. The position of both the sun and the moon in relation to the earth has direct bearing on tide height. When the sun, the moon and the earth are in a straight line, the height of the tide will be higher. These are called spring tides and they occur twice a month, one during the full moon period and another during the new moon period.

Additional information:

- **Neap tides:** These occur when the sun and moon are at right angles to each other and the forces of the sun and moon tend to counteract one another. The tidal range is the lowest. Normally, there is a seven day interval between the spring tides and neap tides.
- **Tides based on Frequency**
  - **Semi-diurnal tide**: The most common tidal pattern, featuring two high tides and two low tides each day. The successive high or low tides are approximately of the same height.
  - **Diurnal tide**: There is only one high tide and one low tide during each day. The successive high and low tides are approximately of the same height.
  - **Mixed tide**: Tides having variations in height are known as mixed tides. These tides generally occur along the west coast of North America and on many islands of the Pacific Ocean.

59. (b)

- **Statement 1 is correct: Laccoliths** are **large dome-shaped intrusive bodies with a flat/ level base**. They are **connected to the magma chamber by a pipe-like conduit**.

- They resemble volcanic domes but are found at greater depths. Examples include **granite domal hills in the Karnataka plateau**.
- **Statement 2 is not correct: Dykes** are not parallel to bedding planes. Instead, they form when magma solidifies in cracks and fissures **almost perpendicular** to the surrounding rock layers, creating **wall-like structures**. If magma solidifies **parallel to bedding planes**, the feature is called a **sill**, not a dyke.

Additional Information:

- **Dykes:** Common in western Maharashtra; feeders for Deccan Trap eruptions.
- **Sills:** Sheet-like intrusive bodies parallel to bedding planes.
- **Batholiths:** Very large intrusive bodies, often granite, forming mountain cores.

60. (b)

- **Statement-I is correct:** The process of heating and cooling of the oceanic water is slower than land. Water has a high specific heat capacity, meaning it can absorb and store a large amount of heat energy without a significant change in its temperature. In contrast, land has a lower specific heat capacity, causing it to heat up and cool down much more quickly. This difference in specific heat is why coastal areas experience more moderate temperature swings than inland regions.
- **Statement-II is correct but is not the correct explanation for Statement-I**: Ocean currents (e.g., Gulf Stream, Kuroshio) redistribute heat from equatorial to polar regions, moderating global climate. Ocean water heats and cools more slowly than land because water has a higher specific heat capacity, mixes vertically, and loses heat via evaporation—making temperature changes gradual. Slow heating/cooling of oceans is due to water's thermal properties, not because currents move heat poleward.

61. (c)

- **Statement 1 is correct:** Polar jet streams are strongest during winters in both hemispheres. This is because the temperature difference between the polar regions and the lower latitudes is greatest during winter, leading to stronger pressure gradients and faster winds.
- **Statement 2 is not correct:** During winters, the thermal contrast between the polar regions and the lower latitudes increases (not decreases), as the polar regions become even colder, while the lower latitudes remain relatively warmer

62. (b)

- **Option (b) is the correct answer:** The **Heat Budget** of the Earth refers to the **delicate balance** between the **solar energy received** by Earth (shortwave radiation) and the **terrestrial energy re-radiated** back into space (longwave radiation).
  - Earth receives **100 units** of solar energy at the top of the atmosphere.
  - About **35% is reflected** back into space (Albedo effect).
  - Around **65% is absorbed**, of which **14% by atmosphere** and **51% by Earth's surface**.
  - This absorbed energy is then redistributed and returned as **longwave radiation, convection, evaporation, and conduction**.
- Thus, the **Earth maintains an average temperature** because the total incoming solar energy is nearly equal to the outgoing terrestrial radiation — this is what is called the **Earth's Heat Budget**.

Additional Information:

- **Albedo:** About **35%** of solar radiation is reflected back (clouds 27%, scattering 6%, Earth's surface 2%).
- **Role of Water:** Oceans and water vapour regulate the energy exchange through **absorption, evaporation, and condensation**.
- **Energy Redistribution:**
  - **Conduction** and **convection currents** transfer heat from Earth's surface to atmosphere.
  - **Evaporation** absorbs latent heat, which is released during condensation in the atmosphere.
- If **incoming ≠ outgoing**, Earth would either **heat up or cool down** significantly, disturbing climate balance.

63. (a)

- **Statement 1 is correct:** Physical or mechanical removal of materials by moving groundwater is insignificant in developing landforms. That is why, the results of the work of groundwater cannot be seen in all types of rocks. **But in rocks like limestones or dolomites rich in calcium carbonate, the surface water as well as groundwater through the chemical process of solution and precipitation deposition develop varieties of landforms.**
- **Statement 2 is not correct:** Many depositional forms develop within the limestone caves. The chief chemical in limestone is calcium carbonate which is easily soluble in carbonated water (carbon dioxide absorbed rainwater). This calcium carbonate is deposited when the water carrying it in solution evaporates or loses its carbon dioxide as it trickles over rough rock surfaces. **Stalactites, Stalagmites and Pillars are depositional landforms.** Stalactites hang as icicles of different diameters. Normally they are broad at their bases and taper towards the free ends showing up in a variety of forms. Stalagmites rise up from the floor of the caves. In fact, stalagmites form due to dripping water from the surface or through the thin pipe, of the stalactite, immediately below it Stalagmites may take the shape of a column, a disc, with either a smooth, rounded bulging end or a miniature crater like depression. The stalagmite and stalactites eventually fuse to give rise to columns and pillars of different diameters.

64. (b)

- Marine west coast climate is located poleward from the Mediterranean climate on the west coast of the continents.
- **Statement 1 is correct: Precipitation occurs throughout the year** in this climate type. Precipitation varies greatly from 50-250cm.
- **Statement 2 is correct:** The main areas having Marine West Coast Climate are: Northwestern Europe, west coast of North America, north of California, **southern Chile**, southeastern **Australia and New Zealand.**
- **Statement 3 is not correct:** The temperature is moderate (not extreme) due to marine influence. The mean temperature in summer months ranges from 15°-20°C and in winter 4°-10°C.

65. (c)

- **Statement 1 is correct:** A gulf is a portion of the ocean that penetrates land. Gulfs vary greatly in size, shape, and depth. They are generally larger and more deeply indented than bays. Like bays, they often make excellent harbors. Many important trading centers are located on gulfs.
  - ♦ Gulfs are sometimes connected to the ocean by narrow passages of water called straits. Gulfs can also have wide openings and are sometimes indistinguishable from larger bodies of water.
  - ♦ For example- The Gulf of Mexico, bordered by the United States, Mexico, and the island nation of Cuba, is the world's largest gulf.
- **Statement 2 is correct:** A strait is a narrow body of water that connects two larger bodies of water.
  - ♦ It may be formed by a fracture in an isthmus, a narrow body of land that connects two bodies of water. Tectonic shifts can lead to straits like this. One strait that was formed by tectonic activity is the Strait of Gibraltar, the only link between the Mediterranean Sea and the Atlantic Ocean.
  - ♦ For example- The Strait of Hormuz connects the Persian Gulf and a part of the Arabian Sea called the Gulf of Oman.

66. (c)

- **Option (c) is the correct answer:** Kazakhstan is the largest producer of uranium in the world (More than 40% of world's supply), followed by Canada and Namibia.

67. (b)

- **About Continental Drift Theory:** Alfred Wegener, a German meteorologist, proposed the Continental Drift Theory in 1912 to explain the distribution of oceans and continents. He suggested that all continents were once part of a single landmass, Pangaea ("all earth"), surrounded by a vast ocean, Panthalassa ("all water"). About 200 million years ago, Pangaea began to split into two major landmasses: Laurasia in the north and Gondwanaland in the

south. These later broke apart into the smaller continents we see today. Wegener supported his theory with multiple lines of evidence.

- **1, 3 and 4 are correct:** Evidence in Support of the Continental Drift are:
  - **The Matching of Continents (Jig-Saw-Fit):** The shorelines of Africa and South America facing each other have a remarkable and unmistakable match.
  - **Rocks of Same Age Across the Oceans:** The belt of ancient rocks of 2,000 million years from Brazil coast matches with those from western Africa. The earliest marine deposits along the coastline of South America and Africa are of the Jurassic age.
  - **Tillite:** It is the sedimentary rock formed out of deposits of glaciers. The Gondawana system of sediments from India is known to have its counterparts in six different landmasses of the Southern Hemisphere. At the base, the system has thick tillite indicating extensive and prolonged glaciation. Counterparts of this succession are found in Africa, Falkland Island, Madagascar, Antarctica and Australia.
  - **Placer Deposits:** The occurrence of rich placer deposits of gold in the Ghana coast and the absolute absence of source rock in the region is an amazing fact. The gold bearing veins are in Brazil and it is obvious that the gold deposits of Ghana are derived from the Brazil plateau when the two continents lay side by side.
- **2 is not correct:** "Identical ancient rock deposits of Europe and Australia," is not a primary piece of evidence cited by Wegener for the theory. The most compelling geological evidence comes from the matching of geological structures and rock types between continents that were once part of Gondwana (like Africa, South America, India, and Australia) and Laurasia (North America and Europe). Therefore, statements 1, 3, and 4 are the key pieces of evidence supporting the theory.

68. (d)

- **1, 2 and 3 are correct:** All three works, Gulamgiri, Shetkaryacha Asud, and Sarvajanik Satya Dharma Pustak, were authored by Mahatma Jyotiba Phule.
- **Gulamgiri (1873):** This book is a powerful critique of the caste system, which Phule likened to slavery.
- **Shetkaryacha Asud (1881)**: Focused on the exploitation of farmers and the peasantry.
- **Sarvajanik Satya Dharma Pustak (1891):** Published posthumously, this work lays out Phule's philosophy of a universal, rational religion (Satya Dharma) that rejects the caste system and the authority of Brahmanical texts.
- **Additional information:** Other important points about Mahatma Phule:
  - In 1848, Mahatma Phule and his wife Savitribai cofounded the first school for girls in India. Phule was only 21 years old at the time; the couple opened 18 more schools in the next three years.
  - He also founded the Satyashodhak Samaj (Society of Truth-Seekers) in September 1873. The body was intended as an alternative to the largely upper-caste dominated reform movements that had been surging in India
  - He wrote an abhang titled Manav Mahammand (Muhammad the man), which extolls the prophet of Islam as having liberated his people from the yoke of superstition and orthodoxy of his age.

69. (a)

- **Statement 1 is correct and Statement 2 is not correct: Madhya Pradesh's Gandhi Sagar Wildlife Sanctuary is poised to welcome the second batch of translocated cheetahs in India.** Declared extinct from India in 1952, Cheetahs were brought back to Madhya Pradesh's Kuno National Park in September 2022. Now, Kuno has 26 cats.
- **Statement 3 is not correct:** Gandhi Sagar is spread across 368.62 sq km, with the **Chambal river cutting it in half.**

70. (c)

- **Statement 1 is correct:** The focus (hypocenter) is the point inside the Earth where the earthquake originates due to the sudden release of energy. Seismic waves radiate outward from this point.

- **Statement 2 is correct:** The epicenter is the point on the Earth's surface that lies directly above the focus. It is usually the location where the earthquake's effects are first and often most strongly felt.

71. (d)

- **Statement 1 is not correct:** Warm currents bring warm water into cold water areas and are usually observed on the east coast of continents in the low and middle latitudes (true in both hemispheres). In the northern hemisphere they are found on the west coasts of continents in high latitudes. On the other hand, **cold currents are found on the east coast in the higher latitudes in the Northern Hemisphere**.
- **Statement 2 is not correct: West coasts of the continents in tropical and subtropical latitudes** (except close to the equator) **are bordered by cool waters.** Their average temperatures are relatively low with a narrow diurnal and annual ranges. There is fog, but **generally the areas are arid**.

72. (b)

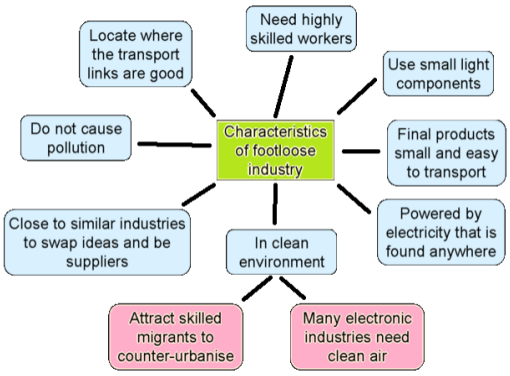
- **Option (b) is the correct answer:** When isobars are straight and when there is no friction, the **pressure gradient force is balanced by the Coriolis force** and the resultant wind blows parallel to the isobar. This wind is known as the geostrophic wind

73. (b)

- **Statement 1 is not correct: Footloose industries** are generally **non-polluting** (e.g., diamond cutting, electronics, watches, camera manufacturing).
- **Non-footloose industries** like **sugar, jute, tea** are more polluting and depend on bulky raw materials.
- **Statement 2 is correct: Non-footloose industries** depend on **raw material sources** and need to be located close to them (e.g., sugar industry near sugarcane fields).
- **Footloose industries** can be located **anywhere** as they do not depend heavily on raw materials (e.g., IT, diamond polishing).
- **Statement 3 is correct: Footloose industries** involve **high value addition** using **lightweight components** (e.g., chips, precision instruments).
- **Non-footloose industries** usually deal with bulk raw materials and are weight-losing industries.

Additional Information:

- **Footloose industries:** Non-polluting, lightweight raw materials, small-scale labour, high skill, high value addition, not tied to location.
- **Non-footloose industries:** Raw-material based, weight-losing industries, polluting in nature, must be located near resource base.



74. (d)

- **Temperature Inversion** occurs when the normal lapse rate (temperature decreasing with height) is reversed, and the air near the ground becomes colder than the air above.
- **Conditions Favorable for Inversion:**
  - **Clear skies**: Allow maximum outgoing radiation at night, cooling the ground quickly.
  - **Long winter nights**: Provide more time for radiational cooling.
  - **Calm atmosphere**: Prevents mixing of air layers, so cold air settles near the ground.
  - **Rapid terrestrial radiation loss**: Speeds up ground cooling.
- **Conditions Unfavorable for Inversion:**
  - **Cloudy nights**: Clouds act like a blanket, trapping heat and preventing surface cooling.
  - **Windy conditions**: Cause mixing of air layers, which breaks down inversion.
- Hence, **temperature inversion is least likely under cloudy and windy nights**. Therefore, option (d) is the correct answer.

75. (c)

- **Statement 1 is correct:** Natural gas reserves are a **complex mixture** of **gaseous hydrocarbons**. Generally, natural gas contains mostly **methane** and small fractions of **ethane, propane, butane, pentane**, and other **higher hydrocarbons**, which give its **calorific power**.
- **Statement 2 is not correct:** As per **BP Statistical Review of World Energy (2023)**, **Russia** has the **largest proven reserves** of natural gas, followed by Iran. The **USA** is the **largest producer**, not the **largest reserve holder**.
- **Statement 3 is not correct:** Natural gas is primarily obtained from underground reservoirs, either on its own or in association with crude oil.

76. (b)

- **Option (b) is the correct answer**: **Equatorial regions** experience **high temperatures and heavy rainfall**, which provide ideal conditions for **intense chemical weathering.**
  - **High Temperatures:** Constant high temperatures year-round speed up chemical reactions.
  - **Abundant Rainfall:** The heavy and consistent rainfall ensures that a constant supply of water is available, promoting a range of chemical reactions. This water often becomes slightly acidic by absorbing carbon dioxide from the atmosphere and decaying organic matter, further enhancing the weathering process.
- **Option (a) is not correct:** Cold deserts with very low rainfall lack sufficient moisture, so chemical weathering is minimal.
- **Option (c) is not correc**t: While there is some chemical weathering, it is less intense than in equatorial regions because of lower average temperatures and seasonal variations in rainfall.
- **Option (d) is not correct:** Polar regions, being extremely cold and dry, experience **frost action and mechanical weathering**, not significant chemical weathering.

77. (b)

- **Statement 1 is correct:** REEs are a set of seventeen chemical elements in the periodic table, specifically the fifteen lanthanides plus scandium and yttrium.
- **Statement 2 is correct:** Known as **"the seeds of technology,"** rare earth elements (REEs) make today's emerging technologies possible – from the miniaturization of electronics, to the enabling of "green" **and medical technologies, to supporting essential defense, telecommunication, and transportation systems.**.
- **Statement 3 is not correct:** India is not self-sufficient in rare earth minerals. Though India has the world's fifth-largest rare earth reserves, the domestic demand is still being met by imports.
  - India has approximately 7.23 million tonnes of rare earth elements oxide (REO) contained in 13.15 MT monazite (a mineral of Thorium and Rare Earths) occurring in the coastal beach, teri and red sand and inland alluvium in parts of Andhra Pradesh, Odisha, Tamil Nadu, Kerala, West Bengal, Jharkhand, Gujarat and Maharashtra, while another 1.29 MT rare earths are situated in hard rocks in parts of Gujarat and Rajasthan

Additional information:

- REEs have unique magnetic, phosphorescent, and catalytic properties. In permanent magnets, they radically boost the magnetic strength, benefiting a wide array of uses.

78. (b)

- **Pair 1 is not correct:** Although Mercury is closest to the Sun, it is **not the hottest planet** because it lacks a substantial atmosphere to trap heat. **Venus** is the hottest planet due to its dense CO_2-rich atmosphere and strong greenhouse effect.
- **Pair 2 is correct:** Venus has a very slow rotation (243 Earth days) and rotates **east to west**, opposite to most planets (retrograde motion).
- **Pair 3 is correct:** Jupiter is the **largest planet** in the solar system, with a diameter of about **142,984 km**.
- **Pair 4 is not correct:** Neptune is the **farthest planet** from the Sun and takes about **165 Earth years** to complete one revolution —

the longest, not the shortest. **Mercury** has the shortest revolution period (88 Earth days).

79. (d)

- **Option (d) is the correct answer:** The 38th Parallel North became the dividing line between North Korea and South Korea after World War II in 1945. It later formed the basis of the Demilitarized Zone (DMZ) established after the Korean War (1950–53).

80. (c)

- **Context:** According to a study by the IIT Kharagpur, surface ozone pollution is impacting India's major food crops, particularly in the Indo-Gangetic Plain and central India
- **About Ozone:** Ozone is a gas composed of three atoms of oxygen. Ozone occurs both in the Earth's upper atmosphere and at ground level. Ozone can be good or bad, depending on where it is found.
- **Statement 1 is correct: A key component of photochemical smog**, ozone is formed by a complex reaction between nitrogen dioxide and hydrocarbons in the presence of sunlight.
- **Statement 2 is not correct:** Ozone is not uniformly harmful throughout the atmosphere. In the stratosphere, the ozone layer plays a protective role by absorbing harmful ultraviolet (UV) radiation. It is harmful mainly in the troposphere (as a pollutant).
- **Statement 3 is correct: Elevated exposures to ozone can affect sensitive vegetation and ecosystems**, including forests, parks, wildlife refuges and wilderness areas. In particular, ozone can **harm sensitive vegetation during the growing season.** IIT Kharagpur, in its recent study found out that **Surface ozone is a strong oxidant that damages plant tissues, leading to visible foliar injuries and reduced crop productivity.**

81. (d)

- **Statement 1 is not correct:** Anticyclone is any large wind system that **rotates around a centre of a high atmospheric pressure clockwise in the Northern Hemisphere** and **counterclockwise in the Southern Hemisphere**. Its flow is the reverse of that of a cyclone.
- **Statement 2 is not correct:** Anticyclones are generally **larger than cyclones**. They exhibit persistent downward motions and yield dry stable air that may extend horizontally many hundreds of kilometres.
- **Statement 3 is not correct:** Anticyclones are usually **meteorologically quiet regions**, unlike cyclones that are typically regions of inclement weather.

82. (b)

- **Statement 1 is correct: Shale gas** is a form of natural gas trapped within **shale rocks**.
- It is stored in **free state (in pores and fractures)**, **adsorbed state (on organic matter and clay)**, and **dissolved state (in organic materials)**.
- **Statement 2 is correct:** Due to the **low permeability of shale**, production of shale gas requires **advanced techniques** like **horizontal drilling** and **hydraulic fracturing (fracking)**.
- **Statement 3 is not Correct:** Shale gas formations in India are **not limited to the offshore Krishna–Godavari basin**. They are spread across several sedimentary basins including **Cambay, Gondwana, Cauvery, Assam-Arakan, and Krishna–Godavari (onshore as well as offshore)**.

Additional Information:

- **Major Shale Gas Basins in India:** Cambay (Gujarat), Gondwana (Jharkhand, West Bengal), Krishna–Godavari (Andhra Pradesh), Cauvery (Tamil Nadu), Assam-Arakan, and parts of Rajasthan & Gangetic plain.
- **Extraction Challenges:** High cost, water usage for fracking, environmental risks, and technological requirements.
- India announced a policy in 2013 for exploration of shale gas and oil by ONGC and Oil India Ltd in identified basins.

83. (b)

- **Statement 1 is not correct: According to BP Statistical Review and OPEC data, Venezuela has the largest proven reserves, followed by Saudi Arabia,** Canada, Iran, Iraq, Kuwait, and then Russia.
- **Statement 2 is correct:** India is the second largest buyer of Russian oil after China, and

Moscow accounts for almost 40% of the country's energy supplies.

84. (b)

- **Statement 1 is correct:** Both P and S waves travel through the **interior of the Earth**. Their paths are **curved** due to **refraction caused by changing rock densities** at different depths. This refraction explains why **S waves are absent beyond 105°** and **P waves between 105°–140°**, forming shadow zones.
- **Statement 2 is correct: Primary (P) waves** are **compressional or longitudinal** waves (push–pull motion, like sound waves). **Secondary (S) waves** are **transverse** waves (motion at right angles to wave propagation, like light waves).
- **Statement 3 is not correct: S waves cannot travel through the liquid outer core**, as they require shear strength (which is why we have the **S-wave shadow zone**). Whereas, **P waves** do travel through the outer core but with reduced velocity.

Additional Information:

- **P waves** are the **fastest seismic waves** and the first to be recorded on seismographs.
- **S waves** are slower and more destructive as they cause greater ground shaking.
- **Discontinuities:**
  - **Gutenberg discontinuity (~2900 km):** Marks entry to liquid outer core; S waves stop, P waves slow.
  - **Lehmann discontinuity (~5150 km):** P wave velocity increases again, showing solid inner core.

85. (c)

- **Statement 1 is correct:** Extra tropical cyclones form along the polar front. Initially, the front is stationary. In the northern hemisphere, warm air blows from the south and cold air from the north of the front. When the pressure drops along the front, the warm air moves northwards and the cold air move towards the south, setting in motion an anticlockwise cyclonic circulation. The cyclonic circulation leads to a well developed extra tropical cyclone, with a warm front and a cold front.
  - There are pockets of warm air or warm sector wedged between the forward and the rear cold air or cold sector.
  - The warm air glides over the cold air and a sequence of clouds appear over the sky ahead of the warm front and cause precipitation. The cold front approaches the warm air from behind and pushes the warm air up. As a result, cumulus clouds develop along the cold front.
  - The cold front moves faster than the warm front, ultimately overtaking the warm front. The warm air is completely lifted up and the front is occluded and the cyclone dissipates.
- **Statement 2 is not correct:** Temperate cyclones can originate both over land and sea, unlike tropical cyclones which form only over warm ocean waters. Their energy is derived from the temperature contrast between air masses (polar and tropical), unlike tropical cyclones which draw energy from latent heat of condensation over warm seas.
- **Statement 3 is correct:** The extra tropical cyclone affects a much larger area as compared to the tropical cyclone.

86. (b)

- **Statement 1 is correct: The New Pamban Bridge** stands as a testament to India's engineering prowess and visionary infrastructure development. Rooted in history, its story traces back to **1914** when British engineers constructed the original Pamban Bridge, a cantilever (a long piece of metal or wood that extends from a wall to support the end of a bridge) structure. The New Pamban Bridge is **India's first vertical lift railway sea bridge.**
- **Statement 2 is not correct:** The New Pamban Bridge is a **2.07-kilometre-long marvel spanning the Palk Strait in Tamil Nadu.**
- **Statement 3 is correct:** The Pamban Bridge connects Rameswaram Island with mainland India.

87. (b)

- **Option (b) is correct: ChaSTE (Chandra's Surface Thermophysical Experiment)**, onboard Chandrayaan-3's Vikram lander, is the **first Indian instrument to measure in-situ temperatures near the Moon's south pole**. ChaSTE also became the first mission

to successfully penetrate the soil of a celestial body to deploy a thermal probe after two previous missions had fallen short. Data from ChaSTE confirmed that **water ice is more prevalent than earlier expected**.

88. (d)

- **Statement 1 is correct:** The **Stand-Up India Scheme** is a **scheme of the Ministry of Finance** aimed at promoting **entrepreneurship** among **SCs, STs, and women**.
- **Statement 2 is correct:** The scheme is aimed at **financing SC/ST and/or women entrepreneurs** for setting up **greenfield enterprises** in **manufacturing, services, trading sectors**, and **activities allied to agriculture**. It ensures that at least **one SC/ST** and **one woman borrower per bank branch** are provided support for **new enterprises**.
- **Statement 3 is correct:** The objective of the scheme is to **facilitate bank loans between ₹10 lakh and ₹1 crore** for **eligible borrowers**. In case of **non-individual enterprises**, at least **51% of the shareholding** and **controlling stake** should be held by either an **SC/ST or woman entrepreneur**.
- **Eligibility for the scheme:**
  - Finance is provided for Greenfield Enterprises.
  - If the applicant is a male, he must be from the SC / ST category.
  - The age of the applicant must be at least 18 years.
  - The applicant must not be in default to any bank/financial institution.

89. (c)

- **Statement 1 is not correct:** Thunderstorms develop in hot, humid tropical areas like India very frequently. The rising temperatures **produce strong upward rising winds**. These winds carry water droplets upwards, where they freeze and fall down again. The swift movement of the falling water droplets along with the rising air creates lightning and sound. It is this event that we call a thunderstorm.
- **Statement 2 is correct:** During thunderstorms, collisions between particles in the cloud cause a separation of charges, leading to a buildup of electrical charges. This results in lightning as the charge is discharged either within the cloud, between clouds, or between the cloud and the ground.
- **Statement 3 is correct:** Thunder is the sound caused by lightning. Thunder is created when lightning passes through the air. The lightning discharge heats the air rapidly and causes it to expand. The temperature of the air in the lightning channel may reach as high as five times hotter than the surface of the sun. Immediately after the flash, the air cools and contracts quickly. This rapid expansion and contraction create the sound wave that we hear as thunder

90. (b)

- **Statement 1 is not correct:** The polar vortex is a large area of low pressure and cold air surrounding both of the Earth's poles. The term "vortex" refers to the counter-clockwise flow of air that helps keep the colder air near the Poles.
- **Statement 2 is correct:** Many times during winter in the northern hemisphere, the polar vortex will expand, sending cold air southward with the jet stream. This occurs fairly regularly during wintertime and is often associated with large outbreaks of Arctic air in areas south of polar regions like those in Canada, the USA, and northern European countries. It weakens in summer and strengthens in winter.
- When the low-pressure system is strong and healthy, it keeps the jet stream travelling around Earth in a circular path. The jet stream keeps the colder air north and the warmer air south. When the vortex weakens, part of the weakened low-pressure system can break off. Without that strong low-pressure system, the jet stream does not have enough force to maintain its usual path. It becomes wavy and rambling. When high-pressure systems get in their way, a collection of cold air pushes south, along with the rest of the polar vortex system.
- Temperatures in the atmosphere over the Arctic can rise, sometimes dramatically. At the same time, the frigid Arctic air moves southward. The vortex strengthens and becomes much colder in winter because with the Northern Hemisphere tilted away from the Sun at that time of year,

little or no sunlight reaches the Arctic to warm it up.

91. (a)

- **Pair 1 is not correct:** A **helium flash** does not occur at the birth of a star. It happens in **low to intermediate mass stars** when the helium core ignites suddenly after hydrogen in the core is exhausted, during the **red giant phase**.
- **Pair 2 is correct:** A **supernova explosion** marks the **death of massive stars** (usually >8 times the Sun's mass). It results in either a **neutron star** or a **black hole**. A massive star, after exhausting its fuel, can no longer support its own weight. Its core collapses under its own gravity, creating an outward-blasting shockwave that causes the star to explode. Supernovas are some of the brightest events in the universe, occasionally outshining entire galaxies at their peak.
- **Pair 3 is not correct:** A red giant is an intermediate stage in the life of a low-mass star, not the final one. After a star becomes a red giant and undergoes a helium flash, it sheds its outer layers to form a planetary nebula, leaving behind a dense, hot white dwarf at its core. The white dwarf then slowly cools down over billions of years, eventually becoming a cold, dark black dwarf.

92. (d)

- **Option (d) is the correct answer:** Brazil is not a part of the Lithium triangle. "Lithium Triangle" is a region in South America that holds some of the world's largest lithium reserves. It is located at the intersection of three countries: Argentina, Bolivia, Chile.
- **Additional information:**
  - Australia is the world's largest producer of lithium (and it is not a part of the Lithium triangle).

93. (d)

- **Statement I is not correct**: *Isotherms show greater deviation in the northern hemisphere*, because of the dominance of landmasses. Land heats and cools faster than oceans, so temperature contrasts are sharper.
- **Statement II is correct**: The Southern Hemisphere has a much larger proportion of ocean surface, which has a moderating effect on temperature distribution. As a result, temperature differences are smaller and isotherms run more smoothly east–west.

94. (d)

- **Statement-I is not correct:** According to the International Energy Agency (IEA), India is the world's second-largest coal consumer, following China. In 2024, India's coal demand reached a record 1,245 million tonnes (Mt), marking a 10% increase from the previous year. This growth was driven by strong economic expansion and increased electricity and industrial demand .
- **Statement-II is correct:** In India, coal is the main source of energy, contributing to around 73% of the energy mix, and around 75% of electricity is generated by coal

95. (a)

- **Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I:** The distance between the Earth and the Sun influences the gravitational pull of the Sun, which in turn affects tidal ranges. When the earth is closest to the sun (perihelion), around 3rd January each year, tidal ranges are also much greater, with unusually high and unusually low tides. When the earth is farthest from the sun (aphelion), around 4th July each year, tidal ranges are much less than average.

96. (c)

- **Statement 1 is correct:** The Madden-Julian oscillation (MJO) is an traveling pattern of anomalous clouds, rainfall, winds, and pressure that traverses the planet in the equatorial and tropical regions.
- **Statement 2 is not correct:** MJO is an eastward moving pattern, that is, it moves from west to east across the global oceans.
- **Statement 3 is not correct:** MJO is best described as *intraseasonal* tropical climate variability. It returns to its initial starting point in 30 to 60 days, on average.
- **Statement 4 is correct:** The MJO consists of two parts, or phases: one is the enhanced rainfall (or convective) phase and the other

is the suppressed rainfall phase. Strong MJO activity often dissects the planet into halves: one half within the enhanced convective phase and the other half in the suppressed convective phase. These two phases produce opposite changes in clouds and rainfall and this entire dipole (i.e., having two main opposing centers of action) propagates eastward. In the enhanced convective phase, winds at the surface converge, and air is pushed up throughout the atmosphere. At the top of the atmosphere, the winds reverse (i.e., diverge). Such rising air motion in the atmosphere tends to increase condensation and rainfall.

97. (b)

- **Statement 1 is correct:** Corals need **warm water (20–29°C)**, shallow depth (up to 60–70 m), and plenty of sunlight for photosynthesis by symbiotic zooxanthellae algae.
- **Statement 2 is not correct:** High sediment load and freshwater reduce water clarity and salinity, blocking sunlight and suffocating corals. Corals require **clear, saline waters** (not turbid, low-salinity ones).
- **Statement 3 is correct:** Corals thrive in normal marine salinity (27–40 ppt). Below or above this range, coral survival reduces drastically.

98. (c)

- **Statement I is correct:** The chief characteristic of orographic rainfall is that the windward slopes receive greater rainfall as compared to the leeward slopes.
- **Statement II is correct and provides the correct explanation for Statement I:** After giving rain on the windward side, when these winds reach the other slope, they descend, and their temperature rises. Then, their capacity to take in moisture increases, and hence, these leeward slopes remain rainless and dry. The area situated on the leeward side, which gets less rainfall, is known as the rain-shadow area.
- **Statement III is not correct:** While causing rainfall on the windward side, the air loses a significant portion, but not all, of its moisture content.

99. (c)

Option (c) is the correct answer: The salinity of the Dead Sea is extremely high (238 parts per thousand). This makes the water much denser than that of ordinary seas or lakes. Due to this high density, the buoyant force exerted on the human body increases significantly, allowing people to float naturally without much effort. Thus, the given phenomenon is caused by the exceptionally high salt concentration of the Dead Sea, which increases the density of water and prevents sinking.

100. (c)

- **Statement 1 is correct:** In higher latitudes, the Sun's rays fall at a **slanting angle**, spreading over a **larger surface area**. As a result, the amount of energy received per unit area decreases compared to the vertical rays in tropical latitudes.
- **Statement 2 is correct:** Slanting rays travel through a **greater depth of the atmosphere**, leading to increased **absorption, scattering, and diffusion** of solar radiation, which further reduces insolation.

■■■■

NEXT IAS

GENERAL STUDIES

CSE Prelims Test Series (PTS): 2026

31st August, 2025 | Test-4 [Sectional Test]

Answer Key

1. (a)	21. (b)	41. (d)	61. (c)	81. (d)
2. (c)	22. (a)	42. (d)	62. (b)	82. (b)
3. (a)	23. (a)	43. (c)	63. (a)	83. (b)
4. (d)	24. (a)	44. (d)	64. (b)	84. (b)
5. (b)	25. (d)	45. (a)	65. (c)	85. (c)
6. (d)	26. (a)	46. (d)	66. (c)	86. (b)
7. (b)	27. (b)	47. (c)	67. (b)	87. (b)
8. (c)	28. (c)	48. (a)	68. (d)	88. (d)
9. (c)	29. (c)	49. (a)	69. (a)	89. (c)
10. (a)	30. (c)	50. (c)	70. (c)	90. (b)
11. (c)	31. (b)	51. (b)	71. (d)	91. (a)
12. (c)	32. (a)	52. (c)	72. (b)	92. (d)
13. (b)	33. (d)	53. (b)	73. (b)	93. (d)
14. (c)	34. (c)	54. (c)	74. (d)	94. (d)
15. (c)	35. (c)	55. (a)	75. (c)	95. (a)
16. (c)	36. (a)	56. (c)	76. (b)	96. (c)
17. (a)	37. (c)	57. (c)	77. (b)	97. (b)
18. (b)	38. (d)	58. (b)	78. (b)	98. (c)
19. (b)	39. (c)	59. (b)	79. (d)	99. (c)
20. (b)	40. (c)	60. (b)	80. (c)	100. (c)

DELHI CENTRE:
Vivekananda House
6-B, Pusa Road, Metro Pillar No. 111,
Near Karol Bagh Metro
New Delhi-110060
Phone: 8081300200

DELHI CENTRE:
Tagore House
27-B, Pusa Road, Metro Pillar No. 118,
Near Karol Bagh Metro
New Delhi-110060
Phone: 8081300200

DELHI CENTRE:
Mukherjee Nagar
637, Banda Bahadur Marg,
Mukherjee Nagar, Delhi-110009
Phone: 9311667076

PRAYAGRAJ CENTRE:
31/31 Sardar Patel Marg,
Civil Lines, Prayagraj
Uttar Pradesh-211001
Phone: 9958857757

JAIPUR CENTRE:
Plot No. 6 & 7, 3rd Floor,
Sree Gopal Nagar,
Gopalpura Bypass, Jaipur-302015
Phone: 9358200511