Q.1) Consider the following statements with reference to the evolution of atmosphere on Earth:

1. The early atmosphere mainly contained hydrogen and helium.

2. Volcanic eruptions contributed water vapour and nitrogen to the atmosphere.

3. Present day atmosphere was largely modified through the process of photosynthesis.

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

Ans) d

Exp) Option d is correct.

The present composition of earth's atmosphere is chiefly contributed by nitrogen and oxygen. There are three stages in the evolution of the present atmosphere.

Statement 1 is correct. The first stage is marked by the **loss of primordial atmosphere.** The early atmosphere, with **hydrogen and helium,** is supposed to have been stripped off as a result of the solar winds. The **early atmosphere was without oxygen,** and the atmospheric pressure was around 10 to 100 atmospheres.

Statement 2 is correct. In the second stage, the **hot interior of the earth contributed to the evolution of the atmosphere.** During the cooling of the earth, gases and water vapour were released from the interior solid earth. This started the evolution of the present atmosphere. **Continuous volcanic eruptions contributed water vapour and gases to the atmosphere.** Nitrogen formed the major part of the then stable "second atmosphere". Most of the **nitrogen in the air was carried out from deep inside the earth by volcanoes.**

Statement 3 is correct. Finally, the **composition of the atmosphere was modified by the living world through the process of photosynthesis.** As the earth cooled, the water vapour released started getting condensed. The carbon dioxide in the atmosphere got dissolved in rainwater and the temperature further decreased causing more condensation and more rains. The rainwater falling onto the surface got collected in the depressions to give rise to oceans. Eventually, **oceans were saturated with oxygen, and 2,000 million years ago, oxygen began to flood the atmosphere.**

Source: Geography, NCERT XI, Chapter-2, Pg. 17-18

Q.2) With reference to the Arctic prairies, consider the following statements:

1. The prairies grow in the tundra climate during the brief summer period.

2. Convectional rainfall is responsible for the growth of arctic prairies.

3. They grow along the coastal lowlands mainly north of the arctic circle.

Which of the statements given above is/are correct?

a) 1 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) c

Exp) Option c is correct.

Statements 1 and 3 are correct. The Polar type of climate is found **mainly north of the Arctic circle** in the northern hemisphere. Its climate is **characterized by very low annual mean temperature** with long freezing cold winter (temperature well below freezing point) & brief cool summers. With a growing season of less than three months & **temperature of the warmest month not exceeding 10° C,** there are no trees in Tundra. Such an environment can support only the lowest form of vegetation, mosses, lichens & sedges. During the summer, berry bearing bushes & **Arctic flowers bloom, brightening up the tundra landscape into Arctic prairies.** They **grow along the coastal lowlands** where the climatic conditions are a little more favourable.

Statement 2 is *incorrect*. In tundra climate, **warmest month temperature seldom rises above 10° C.** Despite the long duration of sunshine in summers, when the sun does not set, temperature remains low as sun rays are too much oblique, with much of it gets reflected by the snow & remaining used up in melting the ice. **Precipitation is mainly in form of snow** & as it takes 10 – 12 inches of snow to make 1 inch of rain, precipitation in polar regions is generally light, not more than 12 inches in a year. **Convectional rainfall is generally absent** because of the low rate of evaporation & lack of moisture in the cold polar air.

Therefore, convectional rainfall **cannot** be responsible for the growth of arctic prairies.

Source: Geography, G. C Leong, Chapter-25, Pg. 184

Q.3) Which of the following statements is /are correct regarding the newly announced Vehicle Scrappage Policy of the Central Government?

1. It will boost the availability of low-cost raw materials for automotive industry.

2. It provides for de-registration of only commercial vehicles and not private vehicles.

Select the correct answer using the code below:

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) a

Exp) option a is correct.

Statement 1 is correct. The objectives of the policy are to

1) reduce population of **old and defective vehicles**,
2) achieve reduction in **vehicular air pollutants** to fulfil India's climate commitments,
3) improve **road and vehicular safety**,
4) achieve better **fuel efficiency**,
5) **formalize** the currently informal **vehicle scrapping industry** and
6) boost availability of low-cost **raw materials for automotive, steel and electronics industry.**

Statement 2 is incorrect. It is proposed that **commercial vehicles be de-registered after 15 years** in case of failure to get the fitness certificate. As a disincentive measure, increased fees for fitness certificate and fitness test may be applicable for commercial vehicles 15 year onwards from the date of initial registration. While **Private Vehicles would be de-registered after 20 years** if found unfit or in case of a failure to renew registration certificate. As a disincentive measure, increased re-registration fees will be applicable for private vehicles 15 year onwards from the date of initial registration.

Source: https://www.downtoearth.org.in/blog/environment/india-s-vehicles-scrappage-policy-a-step-forward-but-a-missed-opportunity-76101

https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1705811

Q.4) The biome has a transitional type of climate found between the equatorial rainforests and hot deserts. The mean annual rainfall ranges from 80–160 cm. Days are hot and nights are cold. Trade winds are the prevailing winds of the region and it is characterised by tall and coarse grass and short trees. The regions mostly have poor soil fertility. Parts of Northern Karnataka, Southern Maharashtra and Telangana exhibit characteristics of this vegetation.

The above paragraph correctly describes which one of the following type of biomes?

a) Mediterranean

b) British type

c) Savanna

d) Laurentian

Ans) c

Exp) Option c is correct.

Option c is correct. The Savanna or the Sudan climate is a **transitional** type of climate found between the **equatorial rainforests** and **hot deserts.** It is confined within the tropics and is best developed in Sudan, hence its name the Sudan Climate.

1) Savanna climate receives considerably less annual rainfall with mean annual rainfall ranging from 80 – 160 cm.
2) The mean annual temperature is greater than 18°C. The extreme diurnal range of temperature, where **days are hot and nights are cold,** is another characteristic feature of the Sudan type of climate.
3) The prevailing winds of the region are the **trade winds,** which bring rain to the coastal areas.
4) The savanna landscape is typified by tall and coarse grass (6 to 12 feet high) and short trees. The grasslands are also called as bush-veld.
5) Many savanna areas, therefore, **have poor lateritic soils** which are incapable of supporting good crops.
6) Certain parts across **Northern Karnataka, Southern Maharashtra and Telangana** exhibit characteristics of both semi-arid and savanna climate.

Source: Geography, G.C Leong, Chapter-17, Pg. 128-131

Q.5) Consider the following pairs with respect to discontinuities found in earth's crust:

Discontinuity	*Boundary between*
1. Moho Discontinuity	Crust and Asthenosphere
2. Gutenberg Discontinuity	Mantle and Outer Core
3. Conrad Discontinuity	Outer core and Inner Core

Which of the pairs given above is/are correctly matched?

a) 1 only

b) 1 and 2 only

c) 2 and 3 only

d) 1, 2 and 3

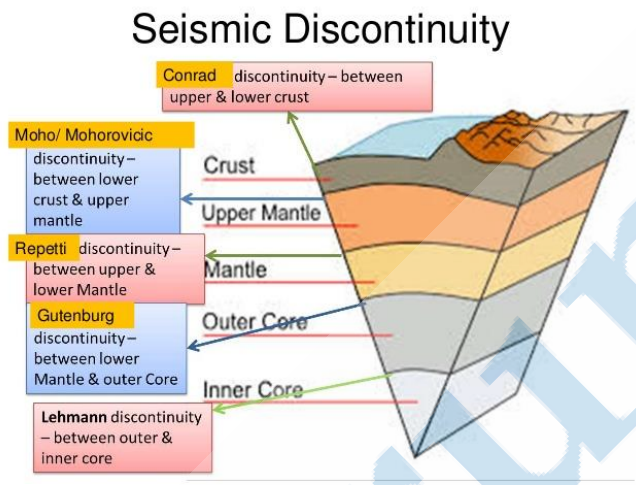
Ans) b

Exp) Option b is correct.

Pair 1 is correctly matched. Mohorovicic (Moho) discontinuity forms the boundary between the **crust and the asthenosphere (upper reaches of the mantle)** where there is a discontinuity in the seismic velocity. It occurs at an average depth of about 8 kilometres beneath the ocean basins and 30 kilometres beneath continental surfaces. The cause of the Moho is thought to be a **change in rock composition from rocks** containing feldspar (above) to rocks that contain no feldspars (below).

Pair 2 is correctly matched. Gutenberg Discontinuity lies between the **mantle and the outer core,** about 2,880 kilometers (1,798 miles) beneath Earth's surface.

Pair 3 is *incorrect*ly matched. Conrad discontinuity lies between the **upper crust and lower crust** whereas **Lehmann discontinuity lies between outer and inner core.**



Source: Geography, NCERT XI, Chapter-3

https://www.nationalgeographic.org/media/earths-interior/

Q.6) Consider the following statements with respect to the Commission for Air Quality Management in National Capital Region and Adjoining Areas:

1. It will replace the Environment Pollution (Prevention and Control) Authority.
2. It is a non-statutory body.
3. The decisions/directions of the commission are advisory in nature.
4. Both the National Green Tribunal (NGT) and civil courts are authorized to hear cases where the Commission is involved.

Select the correct answer using the code below

a) 2, 3 and 4 only

b) 1, 2 and 4 only

c) 1 only

d) 1, 3 and 4 only.

Ans) c

Exp) option c is correct.

Statement 1 is correct, EPCA was constituted in 1998 under section 3 of the Environment (Protection) Act, 1986 for the National Capital Region in compliance with the Supreme Court order dated January 1998. Through an Ordinance in 2020, the **Centre has dissolved the Environment Pollution Prevention and Control Authority (EPCA) for the NCR** and **replaced it by Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas**.

Statement 2 is incorrect, Unlike its predecessor the newly constituted commission is a statutory body created under 'The Commission for Air Quality Management in National Capital Region and Adjoining Areas Ordinance, 2020'.

Statement 3 is incorrect, Powers of the Commission include: (1) restricting activities influencing air quality, (2) investigating and conducting research related to environmental pollution impacting air quality, (3) preparing codes and guidelines to prevent and control air pollution, and (4) issuing directions on matters including inspections, or regulation which will be **binding on the concerned person or authority**. Further, the Commission may impose and collect environment compensation from farmers causing pollution by stubble burning.

Statement 4 is incorrect. Only the National Green Tribunal **(NGT), and not civil courts, is authorised to hear cases where the Commission is involved.** The Centre seeks to relieve the Supreme Court from having to constantly monitor pollution levels through various pollution-related cases.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1671452

https://indianexpress.com/article/cities/delhi/delhi-air-commission-ncr-pollution-6909339/

Q.7) Which one of the following statements correctly describes the difference between the tropical cyclones and extra tropical cyclones?

a) The tropical cyclones have a clear frontal system which is not present in the extra tropical cyclones.

b) The tropical cyclones originate only over the seas whereas extra tropical cyclones originate over both the land and seas.

c) The wind velocity in extra tropical cyclones is much higher than in tropical cyclones.

d) The tropical cyclones move from west to east while the extra tropical cyclones move from east to west.

Ans) b

Exp) Option b is correct.

Option b is correct. Tropical cyclones develop in the region between the **Tropics of Capricorn and Cancer.** They are large-scale weather systems developing over tropical or subtropical waters, where they get organized into surface wind circulation. **Extra tropical cyclones** (also called temperate cyclones or middle latitude cyclones or Frontal cyclones or Wave Cyclones) occur in **temperate zones and high latitude regions.** The extra tropical cyclone differs from the tropical cyclone in number of ways:

1) The **extra tropical cyclones have a clear frontal system** which is not present in the tropical cyclones.
2) **Extra tropical cyclones** cover a larger area and **can originate over the land and sea.** Whereas the tropical cyclones originate only over the seas and on reaching the land they dissipate.
3) The **wind velocity in a tropical cyclone is much higher** and it is more destructive.
4) The **extra tropical cyclones move from west to east** but tropical cyclones, move from east to west.

Source: Geography, NCERT XI, Chapter-10, Pg. 90-91

Q.8) Which one of the following conditions result in the occurrence of frontal rain in the mid-latitudes?

a) The intense heating of the earth's surface.

b) The moisture laden winds coming across mountains.

c) The seasonal reversal of winds.

d) The mixing of two air masses with different temperatures.

Ans) d

Exp) Option d is correct.

Option a is *incorrect*. Convectional rainfall commonly occurs in places with equatorial and tropical climates, where **intense heating of the earth's surface takes place during the day.** During daytime, the air above the land becomes heated making the air less dense, so it rises up. As the air rises it cools. Since cool air cannot hold as much water vapour as warm air, condensation occurs.

Option b is *incorrect*. Relief rainfall or orographic rainfall is caused by the relief or orography of the land. **When moisture laden winds encounter mountains or hills,** the air is forced to rise up the slope of the mountains. When air rises, it cools down and form clouds. The clouds come down as heavy rain on the earth's surface when the dew point of the air is reached.

Option c is *incorrect*. Monsoonal rainfall is characterized by **seasonal reversal of winds** which carry oceanic moisture with them and cause extensive rainfall in south and Southeast Asia.

Option d is correct. Cyclonic or frontal rainfall commonly occurs in the tropical and temperate zones, where the **mixing of cold air with warm and moist air occurs.** When two air masses with different temperatures meet, turbulent conditions are produced. Along the front, convection occurs and causes precipitation. It is **associated with cyclones in the tropical regions and depressions in the temperate zone.** For instance, in north-west Europe, cold continental air and warm oceanic air converge to produce heavy rainfall in adjacent areas.

Source: Geography, NCERT-XI, Chapter-10, 11, Pg. 90-91, 96-97

Q.9) With reference to translocation of species, which of the following statements is/are correct?

1. The National Tiger Conservation Authority (NTCA) keeps an oversight on the translocation process of tigers.
2. Corals cannot be translocated as they are highly sensitive to temperature changes.
3. Recently, India's first inter-state translocation project of Tiger proved to be successful.

Select the correct answer using the code given below:

a) 1 only

b) 2 and 3 only

c) 2 only

d) 1 and 3 only

Ans) a

Exp) Option a is correct.

Statement 1 is correct. The National Tiger Conservation Authority **(NTCA) will keep an oversight on the translocation process of tigers** and may also depute a representative as and when considered necessary.

Statement 2 is incorrect. Although the translocation of corals is at a nascent stage along the Indian coastline but they can be translocated to increase the survival rate. Pilot projects at the Lakshadweep islands, and off the coast of Kutch and Tamil Nadu have been undertaken to study the survival rate, method and site of translocation, and creation of high heat-resistant coral colonies, etc.

Statement 3 is incorrect. India's first inter-state translocation project of Tiger from Orissa to Madhya Pradesh **was not successful** as within months of translocation, one of tiger was found dead and the tigress named Sundari was sent back to Madhya Pradesh. Subsequently, the project was suspended by NTCA.

Source:

https://www.wwfindia.org/about_wwf/critical_regions/national_parks_tiger_reserves/panna_tiger_reserve/news/

https://indianexpress.com/article/explained/mumbai-coastal-road-project-translocation-of-corals-explained/

https://indianexpress.com/article/explained/explained-why-the-first-inter-state-tiger-relocation-project-failed-7243200/#:~:text=On%20Wednesday%2C%20Sundari%20%E2%80%94%20a%20tigress%20shifted%20as,from%20Madhya%20Pradesh%20to%20Odisha%20%E2%80%94%20returned%20home.

https://ntca.gov.in/assets/uploads/guidelines/translocation_protocol.pdf

Q.10) Consider the following statements with reference to effects of ocean currents:

1. Cold Ocean currents result in desert formation in west coast regions of the tropical continents.
2. North Atlantic drift keeps the coasts of the North Sea warm.
3. The mixing of warm and cold currents favours the growth of planktons.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Ocean currents have a number of direct and indirect influences on human activities -

1) West coasts of the continents in tropical and subtropical latitudes are bordered by cool waters. **Cold ocean currents have a direct effect on desert formation in west coast regions of the tropical** and sub-tropical continents.
2) Warm ocean currents bring rain to coastal areas and even interiors. Example: The **North Atlantic Drift keeps the coasts of the North Sea warm** which is unusual for such high latitudes.
3) Warm currents flow parallel to the east coasts of the continents in tropical and subtropical latitudes. This results in warm and rainy climates. These areas lie in the western margins of the subtropical anti-cyclones.
4) They are responsible for moderate temperatures at coasts. Ex: **Canary cold current brings cooling effect to Spain, Portugal etc.**
5) The mixing of warm and cold currents helps to **replenish the oxygen and favour the growth of planktons,** the primary food for fish population.

Source: Geography, NCERT XI, Chapter-14, Pg. 120

Q.11) Which one of the following conditions is the primary reason for higher salinity of ocean waters in tropics and not at the equator?

a) Higher precipitation at the tropics.

b) Enclosed seas at the equator.

c) High pressure at the tropics.

d) Higher rate of evaporation at the equator.

Ans) c

Exp) Option c is correct.

Salinity is the term used to define the total content of dissolved salts in sea water. It is calculated as the amount of salt (in gm) dissolved in 1,000 gm (1 kg) of seawater. It is usually expressed as parts per thousand or ppt.

Option c is correct. High pressure areas have high salinity and vice versa. **Anticyclonic conditions with stable air and high temperature increase salinity** of the surface waters of the oceans. Sub-tropical pressure belts represent such conditions to cause high salinity. Air pressure is low in equatorial regions.

Option a is *incorrect*. Higher is the precipitation, lower is the proportion of salinity. In the equatorial belt, relatively large amounts of rain fall and little evaporation occurs, both because of low wind speeds and because of the generally cloudy skies; salinity in the equatorial belt runs as low as 34 parts per thousand.

Option b and d are *incorrect*. The salinity of water in the surface layer of oceans depends mainly on evaporation and precipitation. **Higher the rate of evaporation, higher is salinity.** The **highest evaporation has been recorded along the tropic of Cancer** and that is one of the reasons that region of Red Sea and Persian Gulf has one of the highest salinities. Another reason for more salinity at the tropics is that **enclosed seas tend to have more salinity in their water.**

Source: Geography, NCERT XI, Chapter-13, Pg. 112-114

Geography, G. C Leong, Chapter-12, Pg. 86-87

Q.12) Which of the following statements are correct regarding Kumhar Sashaktikaran Yojana?

1. It is launched by the Khadi and Village Industries Commission (KVIC).

2. It will be implemented in all the states and UTs.

3. It aims to provide potters with modern equipment and training.

Select the correct answer using the code below

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) c

Exp) option c is correct.

Statement 1 is correct. Kumhar Sashaktikaran Yojana is an initiative of the **Khadi and Village Industries Commission (KVIC) was launched in 2018 for** the empowerment of potters' community in the remotest of locations in the country.

Statement 2 is incorrect. The program will be implemented only in U.P., M.P., Maharashtra, J&K, Haryana, Rajasthan, West Bengal, Assam, Gujarat, Tamil Nadu, Odisha, Telangana and Bihar.

Statement 3 is correct. This program provides support to potters in form of Training for advanced pottery products. **They are provided with new technology pottery equipment like the electric Chaak to increase their productivity**. They are also provided Market linkages and visibility through KVIC exhibitions.

Source: https://vikaspedia.in/social-welfare/entrepreneurship/kumhar-sashaktikaran-yojana

Q.13) Consider the following statements regarding the difference between weathering and erosion:

1. While weathering is endogenic geomorphic process, erosion is exogenic process.
2. Both weathering and erosion cause the displacement of rock materials.
3. Weathering is not a precondition for the occurrence of erosion.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 only

c) 3 only

d) 2 and 3 only

Ans) c

Exp) Option c is correct.

Statement 1 is *incorrect.* The endogenic and exogenic forces causing physical stresses and chemical actions on earth materials and bringing about changes in the configuration of the surface of the earth are known as geomorphic processes. **Weathering, mass wasting, erosion and deposition are exogenic geomorphic processes** while diastrophism and volcanism are endogenic geomorphic processes.

Statement 2 is *incorrect.* Weathering is the gradual disintegration of rocks by atmospheric or weather forces. **The weathered materials are not displaced. Erosion involves acquisition and transportation of rock debris.** When massive rocks break into smaller fragments through weathering and any other process, erosional geomorphic

agents like running water, groundwater, glaciers, wind and waves remove and transport it to other places depending upon the dynamics of each of these agents.

Statement 3 is correct. By erosion, relief degrades, i.e., the landscape is worn down. That means, although **weathering aids erosion, it is not a pre-condition** for erosion to take place.

Source: Geography, NCERT XI, Chapter-6, Pg. 48-51

Geography, G. C Leong, Chapter-4, Pg. 28-29

Q.14) Which amongst the following conditions has helped in higher wine production in the Mediterranean type of climate?

a) High rainfall in the region.

b) Lack of humidity in summer.

c) Warm and dry winters.

d) Absence of local winds in the region.

Ans) b

Exp) Option b is correct.

Mediterranean Climate is also known as Warm Temperate Western Margin Climate or Warm Temperate. They are confined to the western portion of continents, between 30° and 45° N and S of the equator. The climate is characterised by clear skies and high temperatures. The **summers are hot and dry, and the winters are cool and wet.** The mean annual rainfall ranges from 35-90 cm. Many local winds, some hot, others cold are common around the Mediterranean Sea. Ex: **Sirocco, Mistral.** Warm-Summer Mediterranean climates are the most versatile of wine regions. The long, sunny growing season gives vines an early start and allows vigneron to let late-ripening grapes hang into November. Mild, and typically dry, weather during spring allows bud break, flowering, and fruit set to occur without mishap. **Low rainfall, and relative lack of humidity in most of these regions, during the growing season limits risk of rot and mildew.** Therefore, yields are typically both good and predictable.

Source: Geography, G. C Leong, Chapter-19, Pg. 142-143, 145

Q.15) Which of the following statements are correct regarding Institutions of Eminence (IOEs)?

1. They will have academic, administrative and financial autonomy.

2. They are allowed to set up campuses in foreign countries.

3. Greenfield Institution can also be given Institutions of Eminence (IOEs) tags.

4. They will get additional funding of ₹1000 Cr.

Select the correct answer using the code below:

a) 1, 2 and 4 only

b) 1, 2 and 3 only

c) 3 and 4 only

d) 1, 2, 3 and 4.

Ans) b

Exp) Option b is correct.

Statement 1 is correct. Institutions of Eminence is a recognition scheme to empower higher education institutes in India. It was first announced in 2016 Union budget. The selected Institutions under IoE shall have **complete academic and administrative autonomy.**

The IOEs will also have **complete financial autonomy** to spend the resources raised and allocated, subject to general conditions & restrictions of the Statutes and GFR.

Statement 2 is correct. Indian universities and colleges with the Institutions of Eminence (IOEs) tag, which include several IITs, will now be able to **set up campuses in foreign countries** with the University Grants Commission (UGC) issuing fresh guidelines on the same.

Statement 3 is correct, Greenfield Institution (Yet to be established) can also be recommended as Institutes of Eminence. They would get 3-year period to establish and operationalize, and thereafter, EEC will consider giving IoE status to such institutions.

Statement 4 is incorrect, Only Government Institutions which got IOE tag will get additional funding upto ₹1000 Cr, while private Institutions proposed as IoE will not get any financial support.

Source: https://pib.gov.in/Pressreleaseshare.aspx?PRID=1519207

Q.16) Consider the following statements:

1. The rate of decrease of temperature of oceans with depths is lower at the equator than at the poles.

2. The winds blowing from the land towards the ocean helps in upwelling of cold water at coast.

3. The enclosed seas in the high latitudes record relatively higher temperature than the open seas.

Which of the statements given below is/are correct?

a) 1 and 2 only

b) 2 only

c) 1 and 3 only

d) 2 and 3 only

Ans) b

Exp) Option b is correct.

Statement 1 is *incorrect*. The rate of decrease of temperature with depths **is greater at the equator** than at the poles. **Though the surface temperature of the seas decreases from equator towards the poles but the temperature at the ocean bottoms is uniform from the equator towards the pole, which means that the rate of decrease of temperature with increasing depth is more rapid near the equator than towards the poles.**

Statement 2 is correct. 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.

Statement 3 is *incorrect*. The enclosed seas in the low latitudes record relatively higher temperature than the open seas. Whereas the enclosed seas in the high latitudes have lower temperature than the open seas.

Source: https://ncert.nic.in/ncerts/l/kegy213.pdf

Q.17) Which of the following statements is ***incorrect*** with regard to the phenomena of Waves?

a) Water moves from one place to another through waves.

b) Steep waves are fairly young while slow and steady waves originate from far away places.

c) The maximum wave height is determined by the strength of the wind.

d) Wave breaks when the depth of water is less than half the wavelength of the wave.

Ans) a

Exp) Option a is correct.

Statement a is incorrect. Water in the waves does not move, but the wave trains move ahead. Waves are actually the energy, not the water as such, which moves across the ocean surface. Water particles only travel in a small circle as a wave passes. Energy to surface water is provided by the waves.

It is through the **ocean currents** that the water moves ahead from one place to another.

Statement b is correct. A wave size and shape reveal its origin. **Steep waves are fairly young ones and probably formed by local wind. Slow and steady waves originate from faraway places, possibly in another hemisphere.**

Statement c is correct. Most of the waves are caused by the wind driving against water. **The maximum wave height is determined by the strength of the wind**, i.e. how long it blows and the area over which it blows in a single direction.

Waves travel because wind pushes the water body in its course while gravity pulls the crests of the waves downward. The falling water pushes the former troughs upward, and the wave moves to a new position.

Statement d is correct. As a wave approaches the beach, it slows down. This is due to the friction occurring between the dynamic water and the sea floor. **And when the depth of water is less than half the wavelength of the wave, the wave breaks.**

Source: Page No. 120-121 from NCERT Class XI Fundamentals of Physical geography

Q.18) Which of the following statements is/are correct regarding the Sustainable Action for Transforming Human Capital in Education (SATH-E) project?

1. It is a tripartite arrangement between the NITI Aayog, the selected States and knowledge partners from the private sector.
2. It will bring about transformation in the higher education.
3. Merger of schools is one of the measures undertaken to achieve goals of SATH-E.

Select the correct answer using the code given below:

a) 1 and 2 only

b) 1 and 3 only

c) 2 only

d) 3 only

Ans) b

Exp) Option b is correct.

Statement 1 is correct. Sustainable Action for Transforming Human Capital in Education (SATH-E) project aims to identify and build three future 'role model' states for education systems. It is a '**tripartite arrangement', between the NITI Aayog, the three States (Jharkhand, Madhya Pradesh and Odisha)**, chosen through a challenge method, **and knowledge partners** (Boston Consulting Group and Piramal Foundation for Education Leadership) **from the private sector.**

Statement 2 is incorrect. SATH-E will bring about transformation in the elementary and secondary school education. NITI will work in close collaboration with their state machinery to design a robust roadmap of intervention, develop a program governance structure, set up monitoring and tracking mechanisms, hand-hold state institutions through the execution stage and provide support on a range of institutional measures to achieve the end objectives.

Statement 3 is correct. Critical interventions including school mergers, remediation program, and training, monitoring teacher recruitment/rationalization, institutional reorganization at district and state level and proper utilization of Management Information System (MIS) are in execution mode since January, 2018. **Merger of schools is one of the measures undertaken to achieve goals as the process is advocated to help consolidate**

resources such as teachers, libraries, laboratories and play equipment. If the distance to school is more than 1 km, students will be provided travel allowance as per Right To Education (RTE) norms.

Knowledge Base:

SATH-E roadmap refers to a time-bound, goal-driven exercise that will reach its logical culmination by the end of the academic year 2020. The aim is to make the entire governmental school education system responsive, aspirational and transformational for every child.

Source: https://pib.gov.in/newsite/PrintRelease.aspx?relid=165545

https://pib.gov.in/Pressreleaseshare.aspx?PRID=1525111

https://indianexpress.com/article/education/protests-as-odisha-moves-to-merge-8000-schools-with-low-enrollment-6910710/

Q.19) Which of the following factors have resulted in the development of market gardening in the Northwest Europe?

1. Intensive farming with excessive use of fertilizers
2. Warm weather in the region
3. High population density

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

Ans) b

Exp) Option b is correct.

Northwest Europe experiences the **British type climate.** The mean annual temperatures are usually between 5 °C and 15 °C. Summers are moderately warm and winters are abnormally mild because of the warming effect brought by warm North Atlantic Drift. Rainfall occurs throughout the year with winter maxima due to frontal cyclones.

Option 1 is *incorrect.* In north-western Europe intensive market gardening is carried out in many specialized areas where climatic, soil and other factors are best suited for this form of agriculture. **Soils are maintained at a high degree of fertility with very selective application of fertilizers** depending on the type of crops in cultivation.

Option 2 is correct. In a few instances, **warmer weather or better soils as in south-west England** can also induce farmers to take to market gardening despite their remoteness from the more populated districts.

Option 3 is correct. All the north-western European countries are **highly industrialised and have high population densities.** There will normally be great demand for fresh vegetables, eggs, meat, milk and fruits. As the crops are perishable, a **good network of transport** is indispensable. The produce is shipped by high-speed trucks (truck farming, which is commonly used in the United States).

Source: Geography, G. C Leong, Chapter-22, Pg. 165-166

Q.20) With reference to Polar Vortex, consider the following statements:

1. It is a whirling cone of high pressure over the poles.
2. When it becomes strong, a wave of cold air is pushed southwards always.
3. The term vortex refers to counterclockwise flow of air.

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

Ans) c

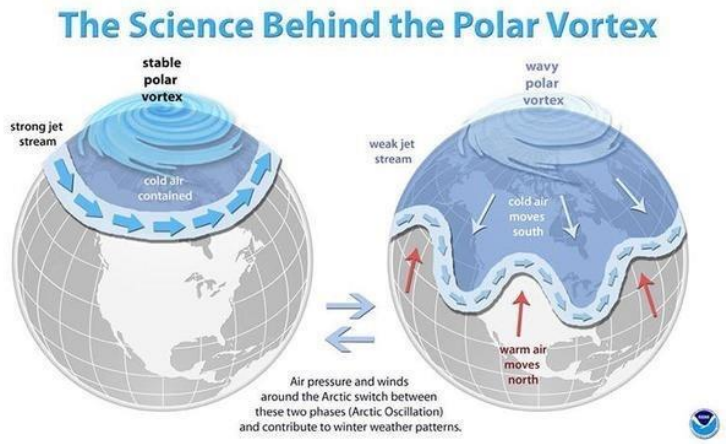
Exp) Option c is correct.

Statement 1 is *incorrect.* Polar vortex is described as a whirling cone of **low pressure** over the poles.

Statement 2 is *incorrect.* Normally, when the vortex is strong and healthy, it helps to keep a current of air (the jet stream) travelling around the globe in almost a circular path. This current keeps the cold air up north and warm air down south. **When the vortex becomes weak there is a lack of a strong low-pressure system, resulting in jet stream losing the hold to keep it in line, and becoming wavy and all of a sudden, a river of cold air is pushed down south.**

Statement 3 is correct. The term vortex refers to counterclockwise flow of air that keeps the colder air near the poles.

Knowledge Base:



Source: https://indianexpress.com/article/explained/whats-causing-extreme-cold-in-us-midwest-polar-vortex-5563646/

https://www.downtoearth.org.in/news/climate-change/just-what-exactly-is-a-polar-vortex--62648

Q.21) Which of the following statements is **incorrect** regarding Jute crop in India?

a) The Government is statutorily required to provide for the compulsory use of jute packaging material in certain commodities.

b) It is mandatory to pack 100 percent of food grains in jute bags.

c) Under the Jute ICARE, quality certified seeds are provided to the jute farmers.

d) Raw jute is not covered under the Minimum Support Price (MSP) regime.

Ans) d

Exp) Option d is correct.

Statement a is correct. Under the Jute Packaging Materials (Compulsory use in Packing Commodities) Act, 1987, the Government is required to consider and provide for the compulsory use of jute packaging material in the supply and distribution of certain commodities in the interest of production of raw jute and jute packaging material and of persons engaged in the production thereof.

Statement b is correct. The government has expanded the scope of mandatory packaging norms under the Jute Packaging Material (JPM) Act, 1987. **To help the jute industry, the government has decided to extend the norms for mandatory packaging of 100 per cent food grains and 20 per cent sugar in diversified jute bags.**

Statement c is correct. Under the Jute ICARE, the government has been supporting about two lakh jute farmers by disseminating improved agronomic practices such as line sowing using seed drills, weed management by using wheel-hoeing and nail-weeders, **distribution of quality certified seeds** and also providing microbial assisted

retting. The 'Jute ICARE' interventions have resulted in enhancing the quality and productivity of raw jute and increasing income of jute farmers by ₹10,000 per hectare.

Statement d is incorrect. Raw jute is **included in the Minimum Support Price (MSP) regime** of the country.

Knowledge Base:

With a view to boost demand in the jute sector, Government of India has imposed Definitive Anti-Dumping Duty on import of jute goods from Bangladesh and Nepal with effect from 5th January, 2017.

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1668402

Q.22) With reference to landforms in glaciated lowlands, which one of the following statements correctly describes the feature of 'Eskers'?

a) They are deep, long and wide troughs with vertical high walls at its head as well as sides.

b) They are U-shaped valleys with broad floors and relatively smooth, and steep sides.

c) They are unsorted glacial deposits comprising a range of eroded materials.

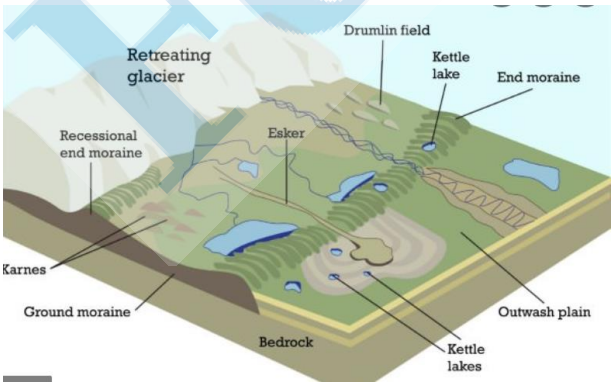
d) They are long and narrow ridges composed of sand and gravel.

Ans) d

Exp) Option d is correct.

Eskers: **These are long, narrow, sinuous ridges composed of sand and gravel which mark the former sites of sub-glacial melt-water streams**.

Process of formation: When glaciers melt in summer, the water flows on the surface of the ice or seeps down along the margins or even moves through holes in the ice. These waters accumulate beneath the glacier and flow like streams in a channel beneath the ice. Such streams flow over the ground (not in a valley cut in the ground) with ice forming its banks. **Very coarse materials like boulders and blocks along with some minor fractions of rock debris carried into this stream settle in the valley of ice beneath the glacier and after the ice melts, can be found as a sinuous ridge called esker.**



Landforms of glaciated lowlands

Option a is *incorrect.*

Cirque: 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.

Option b is *incorrect.*

Glacial Valleys/Troughs: Glaciated valleys are trough-like and U-shaped with broad floors and relatively smooth, and steep sides. The valleys may contain littered debris or debris shaped as moraines with swampy appearance.

Option c is *incorrect.*

Boulder clay or glacial till: This is an unsorted glacial deposit comprising a range of eroded materials — boulders, angular stones, sticky clay and fine rock flour. It is spread out in sheets, not mounds, and forms gently undulating till or drift plains.

Source: G C Leong Chapter 6 Landforms of Glaciation pg no 52

Physical Geography Ncert 11th, Chapter 7 Landforms and their evolution pg no 67, 68

Q.23) "Calcium sulphate takes in water and turns to gypsum, which is more unstable than calcium sulphate. Continued repetition of this long process causes fatigue in the rocks and leads to their disintegration".

Which one of the following processes of weathering is correctly described in the above paragraph?

a) Unloading and expansion

b) Carbonation

c) Weathering by Hydration

d) Frost weathering

Ans) c

Exp) Option c is correct.

Hydration is the chemical addition of water. Minerals take up water and expand; this expansion causes an increase in the volume of the material itself or rock. Calcium sulphate takes in water and turns to gypsum, which is more unstable than calcium sulphate. This process is reversible and long, continued repetition of this process causes fatigue in the rocks and may lead to their disintegration.

Option a is *incorrect.* Unloading and expansion - Removal of overlying rock load because of continued erosion causes vertical pressure release with the result that the upper layers of the rock expand producing disintegration of rock masses.

Option b is *incorrect.* Carbonation is the reaction of carbonate and bicarbonate with minerals and is a common process helping the breaking down of feldspars and carbonate minerals. Carbon dioxide from the atmosphere and soil air is absorbed by water, to form carbonic acid that acts as a weak acid. Calcium carbonates and

magnesium carbonates are dissolved in carbonic acid and are removed in a solution without leaving any residue resulting in cave formation.

Option d is *incorrect*. Frost weathering occurs due to growth of ice within pores and cracks of rocks during repeated cycles of freezing and melting.

Source: G C Leong Chapter 4 Weathering, Mass Movement and ground water pg no 30

Physical Geography Ncert 11th, Chapter 6 GEOMORPHIC PROCESSES Pg no 49, 50

Q.24) Consider the following pairs:

Scheme	***Subject***
1. SERB-POWER Scheme	Funding women researchers to undertake R&D activities.
2. Vigyan Jyoti Scheme	Create a level-playing field for the meritorious girls in high school.
3. GATI Scheme	Fellowship to women for continuing higher education after a break in career.
4. KIRAN scheme	Establishing a Gender Equality framework in Higher Education Institutions.

Which of the pairs given above are correctly matched?

a) 1 and 2 only

b) 3 and 4 only

c) 1,3 and 4 only

d) 1, 2, 3 and 4

Ans) a

Exp) Option a is correct.

Pair 1 is correctly matched. Ministry of Science & Technology has launched "**SERB-POWER (Promoting Opportunities for Women in Exploratory Research)" to encourage emerging as well as eminent women researchers to undertake R&D activities in frontier areas of science and engineering.**

The Scheme will have two components namely:

1) SERB-POWER Fellowship: -

- Target: Women researchers in 35-55 years of age.
- Fellowship of ₹15,000/- per month in addition to regular income.

2) SERB – POWER Research Grants: POWER Grants will empower women researchers by funding them.

Pair 2 is correctly matched. Vigyan Jyoti Programme: was launched by the Department of Science & Technology (DST) in December 2019. **It aims to create a level-playing field for the meritorious girls in high school.** It will encourage them to pursue Science, Technology, Engineering, and Mathematics (STEM) in their higher education and make them self-reliant.

This programme started at school level for meritorious girls of Class IX to Class XII.

Pair 3 is incorrectly matched. The Gender Advancement through Transforming Institutions (GATI) initiative aims to achieve a systemic and cultural transformation in establishing a Gender Equality framework in Higher Education Institutions.

The Department of Science and Technology (DST), Government of India, and the British Council have introduced the GATI to establish an enabling environment for equal participation of women in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at all levels by addressing systemic challenges.

Through GATI, the aim is to **inspire senior leaders such as vice-chancellors and directors to take every possible action to attract, hire and promote more women in STEM fields in India.**

Pair 4 is incorrectly matched. The Department of Science and Technology (DST) is implementing **'Knowledge Involvement in Research Advancement through Nurturing (KIRAN)'** Scheme to provide various **career opportunities to women scientists and technologists.**

It also provides **fellowship support ranging from ₹25000 to 55000 to women ranging in the age group 27 to 57 years** for **continuing higher education in Science and Technology after a break in career**.

Knowledge Base:

SERB: It is a statutory body established through an Act of Parliament in 2008.It is chaired by the Secretary to the Department of Science and Technology and has other senior government officials and eminent scientists as members.

Source: https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=1668565

https://www.thehindu.com/education/the-gati-initiative-towards-a-balanced-world/article34294684.ece

http://serb.gov.in/serb_power.php

https://pib.gov.in/PressReleasePage.aspx?PRID=1697302

https://dst.gov.in/pressrelease/kiran-scheme-dst-lights-st-paths-thousands-women-scientists

Q.25) Which one of the following statements is correct regarding the human activities in Karst regions across the world?

a) These are one of the most productive equatorial regions for vegetative growth.

b) These are remote areas of the Arctic occupied by nomadic hunters and food gatherers.

c) The natural conditions of this region are best suited for animal farming due to availability of pastoral lands.

d) It has scattered human settlements and the only important mineral found here is lead.

Ans) d

Exp) Option d is correct.

Option a is *incorrect*. The **equatorial regions** are generally sparsely populated. In the forests most primitive people live as hunters and collectors and the more advanced ones practise shifting cultivation. Food is so abundant in such a habitat that many people worry very little about the life of the next day.

Option b is *incorrect*. Nomadic hunters and food gatherers are the desert inhabitants. Of the primitive tribes, the Bushmen and the Bindibu are the best known. Both the tribes are nomadic hunters and food gatherers, growing no crops and domesticating no animals.

Option c is *incorrect*. The natural conditions suit animal farming in temperate grasslands. With the development of refrigerated ships in the late nineteenth century, the temperate grasslands became major pastoral regions, exporting large quantities of beef, mutton, wool. hides.

Option d is correct. Karst regions are often barren and at best carry a thin layer of soil. The porosity of the rocks and the absence of surface drainage make vegetative growth difficult, so that limestone can usually support only poor grass and short turf; some sheep grazing is possible. Limestone vegetation in tropical regions, however, is luxuriant because of the heavy rainfall all the year round. **Settlements are scattered and the population is often sparse. The only mineral of importance is lead which occurs in veins in association with limestone.**

Source: G C Leong Chapter 8 Limestone and Chalk Landform pg no 64

Q.26) Consider the following statements:

1. The Drake passage lies between South Africa and the tip of the Antarctic Peninsula in Southern Ocean.

2. The strong westerly winds blowing around the Antarctica results in large-scale upwelling in the Southern Ocean.

3. A recent study showed that marine productivity in the Southern Ocean has increased due to intense solar ultraviolet radiation.

Which of the statements given above is/are correct?

a) 2 only

b) 1 and 3 only

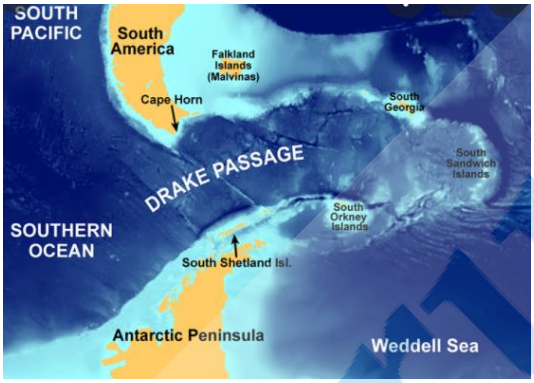
c) 2 and 3 only

d) 1, 2 and 3

Ans) a

Exp) Option a is correct.

Statement 1 is incorrect. The Southern Ocean is made up of the portions of the world ocean south of the Pacific, Atlantic, and Indian oceans and their tributary seas surrounding Antarctica below 60° S. It is unbroken by any other continental landmass. Southern Ocean's narrowest constriction is the Drake Passage, 600 miles (about 1,000 km) wide, **between South America (not South Africa) and the tip of the Antarctic Peninsula**.



Statement 2 is correct. Large-scale upwelling is found in the Southern Ocean. Strong westerly (eastward) winds blow around Antarctica, driving a significant flow of water northwards (Ekman transport). This is actually a type of coastal upwelling. Since there are no continents in a band of open latitudes between South America and the tip of the Antarctic Peninsula, some of this water is drawn up from great depths.

Statement 3 is *incorrect*. Increased solar ultraviolet radiation resulting from the Antarctic ozone hole has reduced marine primary productivity (phytoplankton) by as much as 15% and has started damaging the DNA of some fish.

Source: Southern Ocean | Location, Map, Depth, & Facts | Britannica

https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwihwNCszIfyAhWDXCsKHa-EBVUQFjAAegQIAxAD&url=https%3A%2F%2Fen.wikipedia.org%2Fwiki%2FSouthern_Ocean&usg=AOvVaw0wpXmv9TFEi65nmzOBwQMS

There's a new ocean now—can you name all 5? (nationalgeographic.com)

https://en.wikipedia.org/wiki/Southern_Ocean#cite_note-120

Q.27) The tax revenues fall faster than GDP when the growth is negative. Thus, the next few years is likely to see reduced tax revenue. But pandemic-related spending particularly on health is likely to keep expenditures high. This leads to rise in gap between financing capacity and expenditure needs.

Which phenomenon is described in the question?

a) Pigou effect

b) Fisher effect

c) Scissor effect

d) Penn effect

Ans) c

Exp) Option c is correct.

Scissor effect refers to a simultaneous drop in available financing and increase in expenditure needs. Scissor effect is observed when profitability is reduced as a result of diminishing revenues and increasing costs.

Given the clear inter-linkages between growth and tax revenues and considering the fact that tax revenues fall faster than GDP when growth is negative, **tax revenues are likely to be reduced for the next few years. Pandemic-related spending, particularly on health and other support measures, are likely to keep these expenditures high, prolonging the 'scissor effects'.**

Source: https://indianexpress.com/article/explained/explained-how-covid-19-has-affected-finances-of-state-governments-6906683/

Q.28) Consider the following pairs of different types of chemical weathering and its processes:

Chemical Weathering	*Process*
1. Solution	Bacteria produced acids when dissolve in water, it results in weathering of underlying rocks
2. Oxidation	Removal of solids from the solution
3. Carbonation	Reaction of carbonate and bicarbonate with minerals

Which of the pairs given above is/are correctly matched?

a) 1 only

b) 1 and 2 only

c) 3 only

d) None of the above

Ans) c

Exp) Option c is correct.

Pair 1 is *incorrectly* matched. Solution: When something is dissolved in water or acids, the water or acid with dissolved contents is called solution. This process involves removal of solids in solution and depends upon solubility of a mineral in water or weak acids.

Decomposition by organic acids: Within the soil which covers most rocks are bacteria which thrive on decaying plant or animal material. These bacteria produce acids which when dissolved in water, help to speed up the weathering of the underlying rocks.

Pair 2 is *incorrectly* matched. Oxidation means a combination of a mineral with oxygen to form oxides or hydroxides. Oxidation occurs where there is ready access to the atmosphere and oxygenated waters. The minerals most commonly involved in this process are iron, manganese, sulphur etc.

Pair 3 is correctly matched. Carbonation is the reaction of carbonate and bicarbonate with minerals and is a common process helping the breaking down of feldspars and carbonate minerals.

Source: Physical Geography Ncert 11th, Chapter 6 GEOMORPHIC PROCESSES Pg no 49, 50

Q.29) "This process of mass movement involves slow downslope flowing soil mass or fine-grained rock debris saturated or lubricated with water. It is quite common in moist temperate areas where surface melting of deeply frozen ground and long continued rain respectively, occur frequently".

Which one of the following processes of mass movement is correctly described in the above paragraph?

a) Slump

b) Debris slide

c) Mud flow

d) Solifluction

Ans) d

Exp) Option d is correct.

Solifluction involves slow downslope flowing soil mass or fine-grained rock debris saturated or lubricated with water. This process is quite common in moist temperate areas where surface melting of deeply frozen ground and long continued rain respectively, occur frequently. When the upper portions get saturated and when the lower parts are impervious to water percolation, flowing occurs in the upper parts.

Option a is *incorrect*. Slump is slipping of one or several units of rock debris with a backward rotation with respect to the slope over which the movement takes place.

Option b is *incorrect*. Rapid rolling or sliding of earth debris without backward rotation of mass is known as debris slide.

Option c is *incorrect*. Mud flow: In the absence of vegetation cover and with heavy rainfall, thick layers of weathered materials get saturated with water and either slowly or rapidly flow down along definite channels.

Source: Physical Geography Ncert 11th, Chapter 6 GEOMORPHIC PROCESSES Pg no 52, 53

Q.30) Consider the following pairs:

Crop Disease	*Crop affected*
1. Xoo infection	Rice
2. Yellow rust	Wheat
3. Late blight	Tomato

Which of the pairs given above is/are correctly matched?

a) 1 only

b) 3 only

c) 1 and 2 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Pair 1 is correctly matched. Xoo infection is a serious bacterial leaf blight disease which causes huge yield losses to **rice cultivation** throughout the world. Treatment of rice with cellulose, a cell wall degrading enzyme secreted by Xoo induces rice immune responses and protects rice from subsequent infections by Xoo.

Pair 2 is correctly matched. Wheat yellow rust, also known as wheat stripe rust, is one of the three major wheat rust diseases, along with stem rust of wheat and leaf rust. Yellow Rust disease appears as yellow stripes of powder or dust on leaves and leaf sheaths of the wheat crop.

A new variety of wheat called **HD-3226 or Pusa Yashasvi** was released by the Indian Agricultural Research Institute, which had higher levels of resistance against major rust fungi such as the yellow/stripe, brown/leaf and black/stem.

Pair 3 is correctly matched. Late blight is a potentially devastating disease of **tomato and potato**, infecting leaves, stems and fruits of tomato plants. The disease spreads quickly in fields and can result in total crop failure if untreated.

Knowledge Base: https://extension.umn.edu/diseases/late-blight

https://indianexpress.com/article/explained/this-word-means-yellow-rust-6245018/

https://pib.gov.in/PressReleseDetailm.aspx?PRID=1661596

Q.31) The uniformity of precipitation in North American region of Laurentian climate is a result of which one of the following conditions?

a) The frequent northeastern jet streams from the polar region.

b) The Atlantic Ocean influence along with Great lakes which brings precipitation in the region.

c) The warm ocean current in the western coast of America alongside Pacific Ocean.

d) The occurrence of North Arctic Polar Vortex in the region.

Ans) b

Exp) Option b is correct.

The most remarkable characteristic of the Laurentian climate of the North American region is its uniformity in precipitation (about 3 to 4 inches monthly) with a late summer maximum.

No month is really dry, and the driest month, November, has 2.5 inches of rain. **This uniformity of precipitation is largely due to the Atlantic influence and that of the Great Lakes.**

The warm Gulf Stream increases the moisture content of easterly winds from the open Atlantic. The **prevailing Westerlies** which penetrate across the Rockies carry depressions over the Great Lakes to the New England states. These winds thus promote wet conditions especially in winter, which are vital for the agricultural activities of north-eastern North America. **The meeting of the warm Gulf Stream and the cold Labrador Current** on coastal waters off Newfoundland produces dense mist and fog and gives rise to much precipitation. In summer the Westerlies bring less depression and extend their continental influence to the coast. Temperatures are normally high in summer for the latitude.

Source: G C Leong Chapter 24 The Cool Temperature Eastern Margin (Laurentian) Climate

Pg no 177

Q.32) Which of the following conditions are favorable for the formation of a 'delta'?

1. Active vertical and lateral erosion in the upper course of the river.
2. Unsheltered Coast with higher activities of tides.
3. Sea adjoining the delta to be shallow.
4. Presence of strong current running right angles to the river mouth.

Select the correct answer using the code given below:

a) 1 and 3 only

b) 1, 2 and 3 only

c) 2 and 4 only

d) 1, 2, 3 and 4

Ans) a

Exp) Option a is correct.

When a river reaches the sea, the fine materials it has not yet dropped are deposited at its mouth, forming a fan-shaped alluvial area called a delta.

The following are conditions necessary for formation of river delta:

1) **Active vertical and lateral erosion in the upper course of the river.** The river needs to have enough material to deposit at the river mouth otherwise all materials will be eroded by ocean current or being deposited before they reach the river mouth.
2) **Sheltered Coast** with low to no activities of tides (tideless).
3) **Sea adjoining the delta to be shallow** or the load will disappear in the deep waters.
4) There should be **no strong current running right angles** to the river mouth, washing away the diluents.

Source: G C Leong Chapter 5 Landforms made by running water Pg no 44

Q.33) Antitrust laws, recently seen in news refers to:

a) Regulation of legal relationships in which the legal title to property is entrusted to an individual.

b) Regulation that protects personal information held by the companies by preventing unauthorized disclosures of such information.

c) Laws to protect consumers from predatory business practices and ensure fair competition.

d) Taxation laws that create an additional tax for goods and services purchased in the past.

Ans) c

Exp) Option c is correct.

Antitrust laws are regulations that encourage competition by limiting the market power of any particular firm. Antitrust laws are statutes developed by governments to **protect consumers from predatory business practices and ensure fair competition.**

Antitrust laws often involve **ensuring that mergers and acquisitions don't overly concentrate market power or form monopolies**, as well as breaking up firms that have become monopolies. Antitrust laws are applied to a wide range of questionable business activities, including market allocation, bid rigging, price fixing, and monopolies.

Knowledge Base: **Antitrust activities are in a way anti-competitive practices that have widespread negative impacts** not only on competitors but also on the users:

1) It results in fewer choices left with the consumers for services.
2) Anti-competitive practices discourage innovation in the market.
3) It discourages ethical means by other tech firms as those who are sidelining it are having a competitive edge over them, in absence of proper regulations.
4) A dominant position in the market may create a monopoly, leading to higher prices and low-quality services in the absence of a challenge from any other firm.

Source: https://www.investopedia.com/terms/a/antitrust.asp

https://blog.forumias.com/why-antitrust-lawsuits-are-being-filed-repetitively-against-tech-giants-like-facebook/

Q.34) With reference to the different types of Fronts, consider the following statements:

1. Warm front is the contact zone that develops when the cold air moves towards the warm air mass.

2. Occluded front develops when the front remains stationery.

Which of the following statements is /are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) d

Exp) Option d is correct.

Statement 1 is incorrect. When **two different air masses meet,** the boundary zone between them is called a front. When the **cold air moves towards the warm air mass, its contact zone is called the cold front,** whereas if the warm air mass moves towards the cold air mass, the contact zone is a warm front.

Statement 2 is incorrect. If an **air mass is fully lifted above the land surface, it is called the occluded front.** When the front remains stationary, it is called a stationary front.

Source: Geography, Old NCERT XI, Chapter 10, Pg. 89-90

Q.35) Consider the following statements:

1. Circum-Pacific Seismic belt region is prone to frequent earthquakes because of the movement of tectonic plates.

2. Transform faults are planes of separation generally perpendicular to the mid-oceanic ridges.

3. Alpide earthquake belt extends from Indonesia, through the Himalayas up to the Atlantic.

Which of the statements given above are correct?

a) 1 and 2 only

b) 2 and 3 only

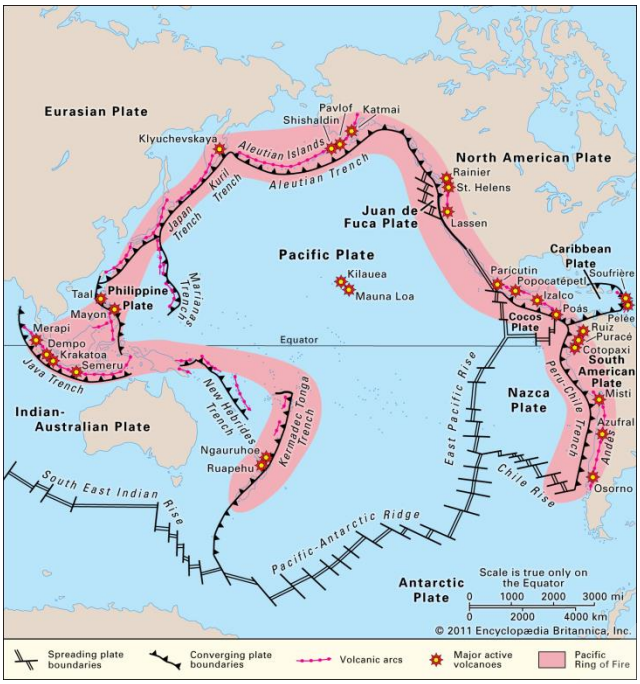
c) 1 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is correct. The abundance of volcanoes and earthquakes along the Circum-Pacific Seismic belt region is caused by the amount of **movement of tectonic plates in the area.** Along much of this region, plates overlap at convergent boundaries called subduction zones. That is, the plate that is underneath is pushed down, or subducted, by the plate above. As rock is subducted, it melts and becomes magma. **The abundance of magma so near to Earth's surface gives rise to conditions ripe for volcanic activity.**



Statement 2 is correct. Transform Boundaries are where the crust is neither produced nor destroyed as the plates slide horizontally past each other. **Transform faults are the planes of separation generally perpendicular to the mid-oceanic ridges.**

Statement 3 is correct. The Alpide earthquake belt extends from Java to Sumatra through the Himalayas, the Mediterranean, and out into the Atlantic. This belt accounts for about 17 percent of the world's largest earthquakes, including some of the most destructive ones.

Knowledge Base: The world's greatest earthquake and Volcanic belt, the **circum-Pacific seismic belt**, is found along the rim of the Pacific Ocean, where about 81 percent of our planet's largest earthquakes occur. It has earned the nickname "Ring of Fire".

Source: Where do earthquakes occur? (usgs.gov)

G C Leonge Vulcanism and Earthquakes

Q.36) Consider the following statements:

1. The base year for the Consumer Price Index for Industrial Workers (CPI-IW) has been revised from 2012 to 2020 recently.

2. The Consumer Price Index for Industrial Workers covers manual workers irrespective of their income.

3. The CPI for Rural Labourers (CPI-RL) is released by National Statistical Office.

Which of the given statements is/are correct?

a) 1 only

b) 2 only

c) 2 and 3 only

d) 1 and 3 only

Ans) b

Exp) Option b is correct.

Statement 1 is incorrect. The **Labour and Employment Ministry has revised the base year of the Consumer Price Index for Industrial Workers (CPI-IW) from 2001 to 2016** to reflect the changing consumption pattern. CPI-IW is compiled and maintained by the Labour Bureau, an attached office of the Ministry of Labour & Employment.

Statement 2 is correct. The CPI-IW index covers only manual workers irrespective of their income. In CPI for Urban Non-Manual Employees (UNME), an urban non-manual employee is defined as one who derives 50 per cent or more of his or her income from gainful employment on non-manual work in the urban non-agricultural sector.

Statement 3 is incorrect. The CPI for Rural Labourers (CPI-RL) is released by the Labour Bureau.

At the national level, there are four Consumer Price Index (CPI) numbers. These are:

1) CPI for Industrial Workers (IW),
2) CPI for Agricultural Labourers (AL),
3) CPI for Rural Labourers (RL) and
4) CPI for Urban Non-Manual Employees (UNME).

CPI(AL) is a sub-set of CPI(RL) series. The rural retail prices for these two index series are the same but the weighting diagrams are different.

While **the first three are compiled and released by the Labour Bureau** in the Ministry of Labour, the fourth one is released by the National Statistical Office in the Ministry of Statistics and Programme Implementation.

Knowledge Base: Changes in CPI-IW:

1) The number of items in the index basket has increased to 463 items as against 392 items in the 2001 series.
2) The weight to food and beverage in the CPI-IW was reduced from 46.2% to 39%.
3) The weight of spending on housing spending on housing and clothing increased from 15.2% to 17%.
4) The weight of miscellaneous items, like education and health rose to 30.31% from 23.26%.
5) The sample size was increased from 41,040 families to 48,384, also the number of selected markets for collecting retail price data was increased from 289 to 317.
6) The Labour Bureau is also working towards revising the index every five years.

The reduction in weight to spending on food and beverages indicated an increase in disposable income.

Uses of the CPI-IW:

1) Measuring inflation in retail prices.

2) It is used to regulate the DA of government employees and industrial workers.

3) Fixing and revising minimum wages in scheduled employments.

Source: https://www.thehindu.com/business/Economy/cpi-iw-base-year-revised-from-2001-to-2016/article32916619.ece

http://mospi.nic.in/112-national-consumer-price-index-numbers

Q.37) In the context of landforms created by volcanic activities, which one of the following statements is ***incorrect*** regarding 'batholiths'?

a) They are a large body of magmatic material that cools in the deeper depth of the crust.

b) They sometimes appear on the surface after denudational processes.

c) They usually have a level base that is connected by a pipe-like conduit from below.

d) They are granitic bodies which cover large areas that may be several kilometres.

Ans) c

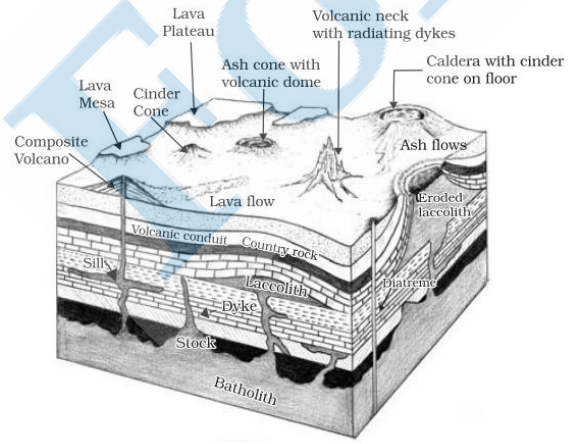
Exp) Option c is *correct.*

Statement a is correct. Bacoliths are **large body of magmatic material** that cools in the deeper depth of the crust develops in the form of large domes.

Statement b is correct. Bacoliths **appear on the surface** only after the denudational processes remove the overlying materials.

Statement c is *incorrect*. **Laccoliths** (and not batholiths) are large dome-shaped intrusive bodies with a level base and connected by a pipe-like conduit from below.

Statement d is correct. Bacoliths cover large areas, and at times, assume depth that may be several km. These are granitic bodies. Batholiths are the cooled portion of magma chamber.



Volcanic Landforms

Source: FUNDAMENTALS OF PHYSICAL GEOGRAPHY Chapter 3 Interior of Earth

Pg no 27, 28

Q.38) This type of vegetation features short grasses with very few trees. It has hot summers and cold winters and is found in parts of Eurasia. The type of vegetation refers to

a) Tropical Savannah

b) Cold Dessert

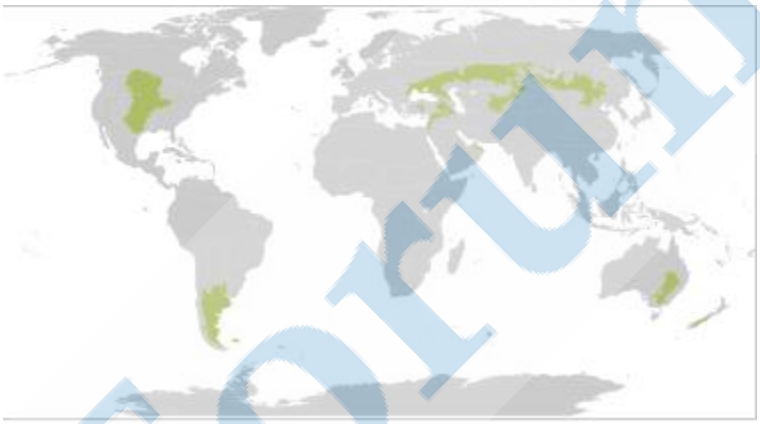
c) Boreal forest

d) Temperate Steppe

Ans) d

Exp) Option d is correct.

Temperate Steppe Grassland are found in the parts of Eurasia and North America. It experiences hot summers and cold winters with the rainfall of 500-900 mm. It has thin flocculated soil, rich in bases. With respect to flora and fauna, it has **grasses and occasional trees** such as cottonwoods, oaks and willows; gazelles, zebras, rhinoceros, wild horses, lions, varieties of birds, worms, snakes etc., are common animals.



Temperate Steppe

Option a is *incorrect.* The **Tropical Savannahs** are practically treeless and the grasses are taller as compared to temperate steppe. Large regions of tropical savanna extend through the nations of Botswana, Namibia, and Kenya in Africa, southern Brazil, India, and Australia.

Option b is *incorrect.* In **cold dessert**, few plants survive. The greatest inhibiting factor is the region's deficiency in heat. There are no trees in the tundra. Such an environment can support only the lowest form of vegetation, mosses, lichens and sedges.

Option c is *incorrect.* The **taiga**, which is also known as the boreal forest region, occupies about 17 percent of Earth's land surface area in a circumpolar belt of the far Northern Hemisphere. The taiga is characterized

predominantly by a limited number of conifer species of pine. Plants and animals in the taiga are adapted to short growing seasons of long days that vary from cool to warm.

Source: NCERT 11th Chapter 15 Life on Earth

Q.39) Rudram-1 missile, recently seen in news is a

a) laser-guided anti-tank missile

b) supersonic anti-submarine torpedo

c) subsonic cruise missile

d) anti-radiation Missile

Ans) d

Exp) Option d is correct.

Rudram 1 is India's first indigenous Anti-Radiation missile for Indian Air Force that has been developed by the Defence Research and Development Organisation (DRDO).

This missile will enhance IAF's requirement of Suppression of Enemy Air Defence (SEAD) Capability.

It has INS-GPS navigation with Passive Homing Head for the final attack.

It has an operational range of more than 100 km, based on the launch parameters from the fighter jet.

Source: https://theprint.in/defence/india-tests-rudram-heres-why-first-indigenous-air-radiation-missile-is-important/521000/

Q.40) With reference to propagation of earthquake waves, which one of the following statements is ***incorrect***?

a) P-Waves vibrate almost parallel to the direction of the earthquake waves.

b) S- Waves can only move through solid rock which led seismologists to conclude that the Earth's outer core is liquid.

c) Rayleigh waves move along the ground just like a wave moves across an ocean.

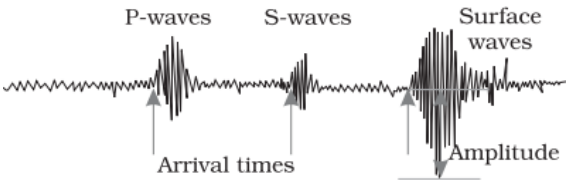
d) Love waves are the slowest surface waves which produces vertical motion during earthquake.

Ans) d

Exp) Statement d is correct.

Statement a is correct. P-waves vibrate parallel to the direction of the wave. The P wave can move through solid rock and fluids, like water or the liquid layers of the earth. P waves are also known as compressional waves,

because of the pushing and pulling they do. **It pushes and pulls the rock and moves through just like sound waves push and pull the air.**



Statement b is correct. S wave or secondary wave is slower than a P wave and **can only move through solid rock, not through any liquid medium. It is this property of S waves that led seismologists to conclude that the Earth's outer core is a liquid.** S waves move rock particles up and down, or side-to-side--perpendicular to the direction of wave propagation.

Statement c is correct. Rayleigh wave is a kind of surface wave. A Rayleigh wave rolls along the ground just like a wave roll across a lake or an ocean. Because it rolls, it moves the ground up and down, and side-to-side in the same direction that the wave is moving. Most of the shaking felt from an earthquake is due to the Rayleigh wave, which can be much larger than the other waves.

Statement d is *incorrect*. Love waves are the fastest surface waves and moves the ground from side-to-side. Confined to the surface of the crust, Love waves produce entirely **horizontal motion.**

Source: What Is Seismology and What Are Seismic Waves? (mtu.edu)

Rayleigh wave - Wikipedia

Love wave - Wikipedia

Q.41) Consider the following statements:

1. Structural Plains are formed by the deposition of materials brought by various agents of transportation.

2. Erosional Plains are formed by horizontally bedded rocks which are relatively undisturbed by the crustal movements of the earth.

3. Erosional plains are hardly smooth and therefore also called as peneplains.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 only

c) 2 and 3 only

d) 3 only

Ans) d

Exp) Option d is correct.

Statement 1 is *incorrect*. Structural plains are relatively undisturbed horizontal surfaces of the Earth. They are structurally depressed areas of the world that make up some of the most extensive natural lowlands on the Earth's surface. **Example- Great Plains of USA**

The difference between structural plains and depositional plains is that the **structural plains are relatively undisturbed plains** and **depositional plains are continuously happening** as forces of deposition like wind, water etc. are constantly at work.

Statement 2 is *incorrect*. Erosional Plains are formed by the continuous and a long-time erosion of all sorts of upland.

Depositional Plains are formed by the deposition of materials brought by various agents of transportation.

Statement 3 is correct. The surface of erosional plains is hardly smooth. These are therefore also called peneplains which mean almost a plain.

Source: G C LEONG Chapter 2 Earth's Crust pg no 18, 19

Q.42) What is 'Mars Opposition', sometimes seen in news?

a) An event when the Mars, Earth and the sun form a straight line during the course of their orbits

b) Gravity anomalies faced by an object on the surface of Mars

c) An event when Mars and Earth are on opposite sides of the Sun

d) The effect of precession in Mars causing the north and south poles to move in a very large circle

Ans) a

Exp) Option a is correct.

Opposition is the event when the sun**, Earth and a planet (Mars in this case) are lined up, with the Earth in the middle.**

Opposition can happen only for planets that are farther away from the sun than the Earth. In case of Mars, roughly every two years, the Earth passes between sun and Mars, this is when the three are arranged in a straight line.

Option c is incorrect. Solar conjunction is an event which occurs every 26 months, when Mars and Earth are on opposite sides of the Sun, communication between the two planets is disrupted.

Source: https://indianexpress.com/article/explained/explained-why-mars-is-the-brightest-this-month-6723839/

Q.43) The revolution of Earth has an influence on which of the following events?

1. Change of the seasons.

2. Difference in temperature distribution in different parts of Earth.

3. Change in lengths of the day and night during a year.

Select the correct answer using the code given below:

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

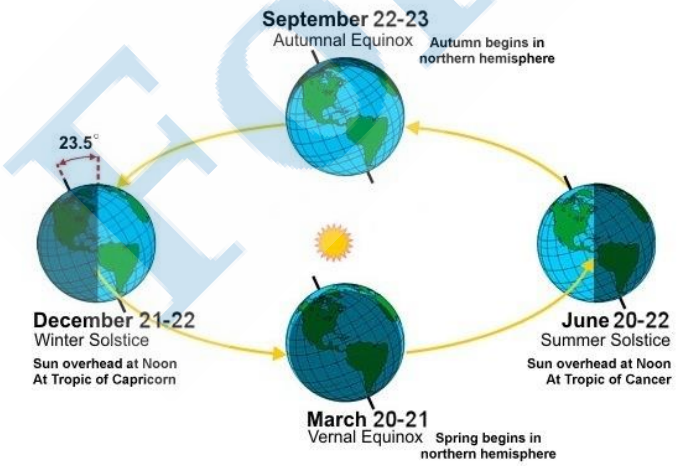
d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

The movement of the Earth around the Sun in a fixed path is called a **revolution**. The Earth revolves from west to east i.e., in the anticlockwise direction. The Earth completes one revolution around the Sun in one year or precisely in 365.242 days.

Statement 1 is correct. Due to revolution of earth and its tilted axis of rotation, there is the changing of the seasons. Earth has seasons because our planet's axis of rotation is tilted at an angle of 23.5 degrees relative to our orbital plane. In summer, when the sun is overhead its rays fall almost vertically on the earth, concentrating its heat on a small area; temperature therefore rises and summers are always warm. In winter the oblique rays of the sun, come through the atmosphere less directly and have much of their heat absorbed by atmospheric impurities and water vapour. The sun's rays fall faintly and spread over a great area. There is thus little heat, and temperatures remain low.



Statement 2 is correct. **Due to revolution of earth and it's tilted axis of rotation,** season changes and thus the temperature distribution of the Earth in a year**.** There is a net gain in total heat received and temperature rises in summer. Temperature decreases during winter.

Statement 3 is correct. The axis of the earth is inclined to the plane of the ecliptic (the plane in which the earth orbits round the sun) at an angle of 66.5°, which gives rise to **varying lengths of day and night when earth revolves**. If the axis were perpendicular to this plane, all parts of the globe would have equal days and nights at all times of the year.

Source: G C Leong. Page 5-6

Q.44) The Sea floor spreading hypothesis explains which of the following events?

a) The antipodal arrangement of continent and oceans on Earth surface.

b) The movement of sialic continent on oceanic sima without any resistance.

c) The movement of rigid and solid plates on weak asthenosphere.

d) The movement of oceanic crust from mid oceanic ridges in opposite direction.

Ans) d

Exp) Option d is correct.

Option a is *incorrect*. Tetrahedral hypothesis of Lowthian Green explains the antipodal arrangement of continent and oceans on earth surface. The hypothesis is based on the charac-teristics of a tetrahedron which is a solid body having four equal plane surfaces, each of which is an equilat-eral triangle

Option b is *incorrect*. Continental drift theory explains the **movement of sialic continent on oceanic sima** without any resistance. It was put forward by Alfred Wegener in 1920s.

Option c is *incorrect*. Plate tectonics theory explains the movement of rigid and solid plates on weak asthenosphere. McKenzie and Parker suggested the theory of plate tectonics. There are 7 major tectonic plates on earth surface.

Option d is correct. Sea Floor Spreading explains the movement of oceanic crust from mid oceanic ridges in opposite direction. **Harry Hess** proposed the idea of the Sea floor spreading. When oceanic plates diverge, tensional stress causes fractures to occur in the lithosphere. Basaltic magma rises from the fractures and cools on the ocean floor to form new seafloor. The newly formed seafloor then gradually moves away from the ridge, and its place is taken by an even newer seafloor and the cycle repeats.

Source: Savinder Singh chapter 5. Page 50-55

Q.45) The Indian currency saw one of the biggest falls against the US dollar recently. Which of the following are the reasons for the depreciation of Rupee in the past few years?

1. Raising of interest rates by America's Federal Reserve.
2. Economic recession due to COVID-19 and related supply chain disruptions.
3. Decreasing Foreign portfolio investments
4. RBI's Government Securities Acquisition Programme

Select the correct option using the code given below:

a) 1, 2 and 3 only

b) 2, 3 and 4 only

c) 1, 3 and 4 only

d) 1, 2, 3 and 4

Ans) d

Exp) Option d is correct.

Statement 1 is correct: When America's Federal Bank **raises interest rates**, depositing in American banks becomes more appealing to overseas investors and **FPI investments in India fall, causing depreciation** of the rupee. **The US Federal Reserve has raised interest rates in September 2018** by 0.25%.

Statement 2 is correct: Lockdowns have **disrupted production and transport**, thus causing **physical fall in commerce volumes**. Many economic **activities like construction and commerce are shut down**. **Sentiments in financial markets are also negative**. All this has caused a contraction of economy and volatility in currency markets, leading to depreciation of the rupee.

Statement 3 is correct: Another factor has been the **decreasing support of the Foreign Portfolio Investors (FPIs),** who pumped huge inflows into Indian equity markets between October 2020 and February 2021. While the FPIs invested a net of ₹1.94 lakh crore between October 2020 and February 2021 (in the Indian markets), in **the month of April 2021 they have pulled out a net of ₹ 2,263 crore (till date).**

FPIs act as a source (supply) of forex, thereby causing appreciation of domestic currency, whereas their withdrawal reduces supply of dollars, causing depreciation.

Statement 4 is correct: RBI's G-Sec acquisition will **introduce a lot of liquidity (increase supply of rupee vis a vis dollar).** This also contributes to the rupee's depreciation.

Knowledge Base:

1) The value of a domestic currency vis a vis another currency is determined by their relative supply and demand in the market (real and financial).

2) Factors that decrease demand of domestic currency or decrease the supply of foreign currency cause depreciation (fall in value) of domestic currency.
3) Recently, the **Indian Rupee depreciated to a nine-month low** of 75.4 against the USD, it is **one of the biggest losers among the emerging market currencies.**

Impact:

1) **Losers:** People **Importing** from outside; People seeking **foreign education;** People **travelling abroad;** People **investing abroad;** People seeking **medical treatment abroad** etc.
2) **Gainers:** People **exporting** from India; People receiving **remittances** from **Non Resident Indian (NRI);** Foreign tourists as **travel to India** gets cheaper.

Source: https://indianexpress.com/article/explained/why-the-rupee-is-among-biggest-losers-over-the-past-few-weeks-7272922/

Q.46) The Earth's radius at the equator is larger than at the poles. Which one of the following is the primary reason for this?

a) Rotation of Earth on its axis
b) Revolution of Earth around the Sun
c) Pull of gravity is very high at poles
d) Tilted axis of Earth's rotation

Ans) a

Exp) Option a is correct.

Option a is correct. The radius at the equator is larger than at the poles due to the long-term **effects of the earth's rotation.** The difference in radius is due to the centrifugal force of the earth's rotation which causes the bulging at the equator and compression at the Poles. The Earth is about 43 km (27 mi) wider at the equator than pole-to-pole.

Option b is *incorrect.* The Revolution of Earth around the sun does not causes bulging at the equator. The revolution affects the occurrence of different seasons on Earth.

Option c is *incorrect.* This is **one of the effects** of the bulging of the Earth at equator. The poles are closer to the center due to the equatorial bulge, and thus have a stronger gravitational field. This is due to the fact that the radius at the equator is larger than at the poles.

Option d is *incorrect.* Earth's tilted axis **causes the seasons** and not the bulging. Throughout the year, different parts of Earth receive the Sun's most direct rays. So, when the North Pole tilts toward the Sun, it's summer in the Northern Hemisphere. And when the South Pole tilts toward the Sun, it's winter in the Northern Hemisphere. It

is also the reason behind **variations in the length of day and night** throughout the Earth. Earth's axis is tilted 23.5 degrees.

Source: https://oceanservice.noaa.gov/facts/geoid.html

Q.47) The earthquakes at the mid oceanic ridges are located at shallow depths. What is/are the reason/reasons behind this?

1. Mid-oceanic ridges are the regions where no volcanic eruptions occur.

2. At greater depths, below mid oceanic ridges, no permanent deformation of rocks occur.

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

Ans) d

Exp) Option d is correct.

Statement 1 is *incorrect*. The mid-oceanic ridges were found to be **most active in terms of volcanic eruptions.** The mid-ocean ridges are the Earth's largest volcanic system, accounting for more than 75% of all volcanic activity on the planet.

One of the reasons behind the shallow location of earthquakes at Mid- Oceanic ridges is- the divergent plate margins at MOR are offset by numerous transform faults. The Pacific-Antarctic Ridge (left) is spreading relatively rapidly at 42 to 94 mm/year, depending on the location along the ridge. The locations of earthquakes along mid-ocean ridges, and the mechanisms for causing them, depend on how rapidly the mid-ocean ridges are spreading.

Statement 2 is *incorrect*. Earthquakes less than 70 km deep are classified as shallow-focus. Earthquakes along divergent (mid oceanic ridges) and transform plate margins are shallow because **below those depths, rock is too hot and weak to avoid being permanently deformed** by the stresses in those settings. On the contrary, at greater depths of mid-oceanic ridges, the rocks are very hot and under high pressure so they deform by flowing rather than breaking and faulting. Such deformation does not create much earthquake or shaking on surface.

Source: https://openpress.usask.ca/physicalgeology/chapter/12-3-earthquakes-and-plate-tectonics-2/

Q.48) With reference to coral reefs, consider the following statements:

1. They thrive abundantly in tropical waters with 20-25°C temperature.

2. They can grow only in deep waters.

3. A river mouth is very ideal for their growth due to abundance of fresh water.

Which of the statements given above is/are correct?

a) 1 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) a

Exp) Option a is correct.

Statement 1 is correct. Corals thrive in tropical waters **between 30°N and 30°S latitudes**. The temperature of water is around **20°C** where diurnal and annual temperature ranges are very narrow. However temperate and extra tropical varieties of corals are also found.

Statement 2 is *incorrect*. Coral requires fairly **good amount of sunlight** to survive. The ideal depths for coral growth are 45 m to 55 m below sea surface, where there is abundant sunlight available.

Statement 3 is *incorrect*. Coral reefs require **clean sediment free water** as both fresh water and highly saline water are harmful. **Sediments** from river water can **clog their mouth and may become fatal**.

Source: Savinder Singh chapter 30. Page 400-401

Q.49) With reference to different types of coasts, consider the following statements:

1. Ria coasts are formed due to upliftment of continental self.

2. Fjord coasts are the result of drowned glaciated valleys.

3. Dalmatian coasts are longitudinal coasts where mountains run parallel to the coast.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

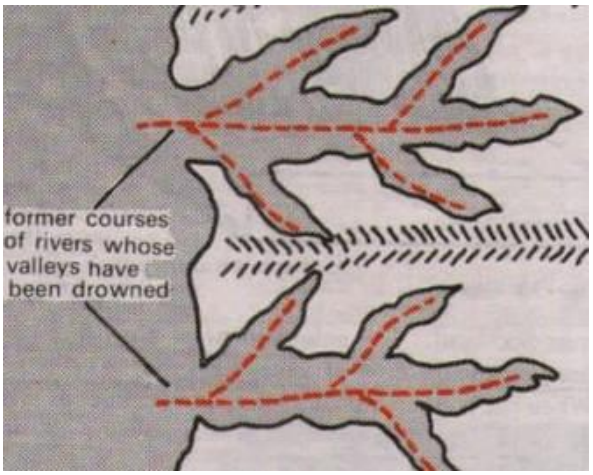
c) 1 and 3 only

d) 1, 2 and 3

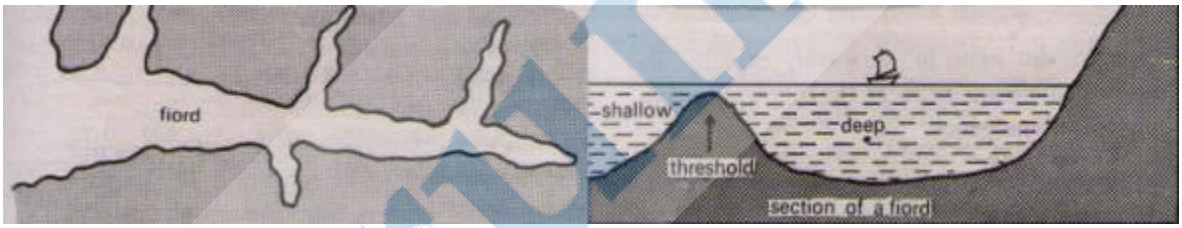
Ans) b

Exp) Option b is correct.

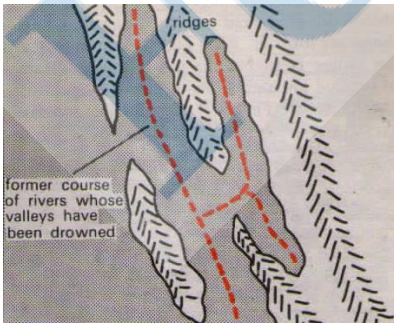
Statement 1 is *incorrect*. Ria Coasts are drowned river valleys. Ria coast is a coastal inlet formed by the **partial submergence of an unglaciated river valley** that remains open to the sea & is a coastline having several parallel rias separated by prominent ridges, extending a distance inland.



Statement 2 is correct. Fjord coasts are drowned glaciated valleys, which were **created by glaciers** that moved very slowly over time, and greatly altered the landscape when they moved through an area carving deep valley. Fjord coast is formed when a glacier retreats, after carving its typical U-shaped valley with the sea filling the resulting valley floor.



Statement 3 is correct. Dalmatian coasts are a longitudinal coast where the **mountains run parallel to the coast**, where the submergence of the coastline produces long, narrow inlets with a chain of islands parallel to the coast. Here the **elongated islands are the crests of former ranges** & the narrow inlets were the former longitudinal valleys.



Source: G C Leong geography. Page76-77

Q.50) Consider the following pairs of local winds in India and their features:

Local wind	*Feature*
1. Mango Shower	Post monsoon showers in Uttar Pradesh.
2. Loo	Thunderstorms during hot summer in northern plains.
3. Kal Baisakhi	Evening thunderstorms in Bengal and Assam

Which of the pairs given above is/are correctly matched?

a) 1 only

b) 1 and 2 only

c) 3 only

d) 1, 2 and 3

Ans) c

Exp) Option c is correct.

Pair 1 is *incorrect*ly matched. Mango showers are the local winds towards the close of the summer season and **are pre-monsoon showers** common in especially **Kerala and Karnataka**. They help in the early ripening of mangoes.

Pair 2 is *incorrect*ly matched. Loo is a local afternoon **dust storms that** are common during summers. They are very hot and dry winds blow over North Indian plains. Exposure to these hot winds may cause heat or sun stroke.

Pair 3 is correctly matched. Nor Westers/Kalbaisakhi/Bardoli Chheerha are localized **thunderstorms,** associated with violent winds, torrential downpours, often accompanied by hail. In **West Bengal**, these storms are known as the 'Kaal Baisakhi'. In **Assam**, these storms are known as "Bardoli Chheerha".

Source: https://nios.ac.in/media/documents/SecSocSciCour/English/Lesson-10.pdf

https://ncert.nic.in/ncerts/l/kegy104.pdf