Q. 1) Consider the following statements

- 1. Carbon dioxide is transparent to incoming solar radiation but opaque to outgoing terrestrial radiation.
- 2. The earth receives most of its energy in long wavelengths

Choose the correct code:

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.1) Solution: (a)

Explanation

- Carbon dioxide is transparent to incoming solar radiation but opaque to outgoing terrestrial radiation. This means it allows the heat from the Sun to reach the earth's surface while the heat radiated by the earth's surface is trapped inside itself. CO2 absorbs some part of the terrestrial radiation and some part is reflected back to earth's surface. This is the property which makes CO2 a greenhouse. Greater the CO2 content, greater will be the warming up of the atmosphere. Hence, statement 1 is correct.
- The Earth receives most of its energy from the Sun in the form of short wavelengths, primarily in the visible and ultraviolet regions of the electromagnetic spectrum. This energy is then absorbed by the Earth's surface and re-emitted as long-wavelength infrared radiation, which is partly trapped by the atmosphere, contributing to the greenhouse effect and keeping the Earth's surface warm enough to support life. **Hence, statement 2 is incorrect**.

Q.2) With respect to the differential heating of the different atmospheric layers, consider the following statements:

- 1. Troposphere heats up mostly because of terrestrial radiations.
- 2. Stratosphere heats up because of the interaction between oxygen and UV rays
- 3. Mesosphere experiences a drop in temperature with height despite greater exposure to UV rays.

4. Oxygen is the limiting factor that leads to the variation in temperature in Stratosphere and Mesosphere.

Choose the correct code:

- a) Only one statement is correct
- b) Two statements are correct
- c) Three statements are correct
- d) Four statements are correct

Q.2) Solution: (d)

Explanation

- The troposphere gets some of its heat directly from the Sun but mostly, it heats up because of terrestrial radiations. These terrestrial radiations are trapped by various gases in the troposphere. So, statement 1 is correct.
- In the stratosphere, ozone molecules absorb high-energy ultraviolet (UV) light from the Sun and transform it into heat. The continuous interaction between oxygen and UV rays leads to production of Ozone molecule which again dissociates and releases heat. This reaction is possible because oxygen is present in significant amount in this layer. The temperature in the stratosphere increases with height. Thus statement 2 is correct.
- Mesosphere experiences a drop in temperature with height despite greater exposure to UV rays because the oxygen at this level is negligible for any meaningful production of ozone. And without ozone, the UV rays cannot be converted to heat. So, the layer experiences the highest temperature at Stratopause and then the temperature reduces with height. So, statement 3 is correct.
- From the above explanation, it is clear that oxygen is the limiting factor that leads to the variation in temperature in Stratosphere and Mesosphere. Statement 4 is correct.

Q3.) Arrange the following regions based on the amount of insolation received starting from the highest to the lowest:

- 1. Equator
- 2. Tropical areas
- 3. Subtropical desert
- 4. Temperate region

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Choose the correct code:

- a) 1-2-3-4
- b) 2-3-1-4
- c) 3-2-1-4
- d) 3-1-2-4

Q.3) Solution: (c)

Explanation

Maximum insolation is received over the subtropical deserts, where the cloudiness is the least. Equator receives comparatively less insolation than the tropics.

- Subtropical desert regions, such as the Sahara in Africa and the Arabian Desert in the Middle East, receive the highest amount of insolation because they are located in areas of high atmospheric pressure where cloud cover is minimal. The high atmospheric pressure causes air to sink and warm up, leading to clear skies and high temperatures. As a result, these regions receive the highest amount of insolation per unit area per unit time.
- Tropical areas, such as the Amazon rainforest in South America and the Congo Basin in Africa, receive the second-highest amount of insolation because they are also located near the equator and experience almost perpendicular incidence of the sun's rays. However, tropical regions typically have more cloud cover than subtropical deserts, which results in a lower amount of insolation.
- Equator have highest cloud covers and daily rainfall, this reduces the overall insolation even though it is located more favourably to receiver insolation. This is majorly due to low atmospheric conditions due to convectional heating
- The temperate regions, such as the United States and Europe, receive the lowest amount of insolation because they are located far from the equator and experience oblique incidence of the sun's rays. The angle of incidence causes the sunlight to be spread over a larger area, resulting in a lower amount of insolation per unit area per unit time. Additionally, temperate regions tend to have more cloud cover and variable weather patterns, further reducing the amount of insolation.

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Q.4) The places at Higher elevation record lower temperature than places at sea level because of:

- a) Standard Lapse Rate (SLR).
- b) Adiabatic Lapse Rate
- c) Moderation effect of the sea
- d) Inversion of temperature

Q.4) Solution: (b)

Explanation

- The As air rises in the atmosphere, it expands and cools adiabatically due to the decrease in air pressure. This results in a decrease in temperature with increasing altitude, and this is known as the adiabatic lapse rate. The adiabatic lapse rate is generally around 6.5°C per kilometer in the troposphere, which is the lowest layer of the atmosphere where we live and weather occurs. Hence b is correct
- The Standard Lapse Rate (SLR) is a hypothetical rate of temperature decrease with increasing altitude, assuming dry air and constant atmospheric pressure. It is not the reason for the temperature decrease at higher elevations, but rather a reference value used to calculate temperature variations with altitude. **Hence a is incorrect**
- The moderation effect of the sea (option c) is a phenomenon where the ocean acts as a temperature moderator, keeping coastal areas cooler in summer and warmer in winter compared to inland areas. This effect is due to the high heat capacity of water, which allows it to absorb and release heat more slowly than land. However, it is not relevant to the temperature differences between higher elevations and sea level. Hence c is incorrect
- An inversion of temperature (option d) is a situation where the normal decrease in temperature with altitude is reversed, and the temperature increases with height. This can occur when a layer of warm air lies above a layer of cooler air near the surface. However, this phenomenon is not relevant to the question at hand, which is why higher elevations have lower temperatures than places at sea level. Hence d is incorrect

Q.5) Consider the following statements with reference to the incoming solar radiation:

- 1. The insolation received by the earth is more at the aphelion than at the perihelion.
- 2. During winters in the Northern Hemisphere, the isotherms deviate to the North over Oceans and to the South over continents.

Which of the statements given above is/are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.5) Solution: (b)

Explanation

- One of the factor's affecting insolation is the variations in the distance between the earth and the sun. During its revolution around the sun, the earth is farthest from the sun on 4th July and this is called aphelion. On 3rd January, the earth is the nearest to the sun and this position is called the perihelion. Insolation received during perihelion will be slightly greater than during aphelion. Thus, **statement 1 is incorrect.**
- In January i.e., winters in the Northern Hemisphere, the isotherms deviate to the north over the ocean and to the south over the continent. This can be seen on the North Atlantic Ocean. The presence of warm ocean currents, Gulf Stream and North Atlantic drift, make the Northern Atlantic Ocean warmer and the isotherms bend towards the north. Over the land the temperature decreases sharply and the isotherms bend towards south. Thus, statement 2 is correct.

Q.6) Consider the following statements:

- 1. A long winter night with clear skies and still air is an ideal condition for temperature inversion.
- 2. Dense fogs in winter mornings are caused due to temperature inversion.
- 3. Temperature inversion happens throughout the year in polar areas.

Which of the above statements is/are correct?

- a) Only 1 and 2
- b) Only 2 and 3
- c) Only 1 and 3
- d) 1, 2 and 3

Q.6) Solution: (d)

Explanation

- Normally, temperature decreases with increase in elevation. It is called the Normal Lapse Rate. But sometimes, the situation is reversed and the temperature decreases with increase in elevation. It is called Inversion of temperature.
- A long winter night with clear skies and still air is an ideal situation for inversion. The heat of the day is radiated off during the night, and by early morning hours, the earth is cooler than the air above. **Statement 1 is correct.**
- Dense fogs during winter mornings are common occurrences. **Statement 2 is correct**. Smoke and dust particles get collected beneath the inversion layer and spread horizontally to fill the lower strata of the atmosphere.
- Inversion is usually of short duration but quite common nonetheless. Over polar areas, temperature inversion is normal throughout the year. **Statement 3 is correct.**

Q.7) What is 'air drainage'?

- a) Air pockets flowing along with the ocean currents
- b) Air pockets being lifted up due to convectional winds
- c) Air pockets moving down hills and mountains under the influence of gravity.
- d) Air pockets draining the stratosphere due to stratospheric clouds

Q.7) Solution: (c)

Explanation

- Air drainage refers to the process of cold and dense air flowing downhill or from higher elevations to lower elevations under the influence of gravity. This occurs because cold air is denser than warm air, and therefore it tends to sink to lower elevations. The process of air drainage is also known as cold-air drainage or katabatic winds. Hence option c is correct
- **Option (a)** is incorrect because air pockets do not flow along with ocean currents, but rather they can be transported by wind patterns in the atmosphere.
- **Option (b)** is incorrect because convectional winds typically lift air pockets upwards rather than causing them to drain downhill.
- **Option (d)** is also incorrect as stratospheric clouds do not drain air pockets from the stratosphere.

Q.8) Which of the following factors affect the formation of Pressure Belts?

- 1. Insolation
- 2. Rotation of Earth
- 3. Jet Streams in upper troposphere

4. Seasonal variations

Select the correct answer using the code given below:

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

Q.8) Solution: (d)

Explanation

- The pressure belts of the Earth are layers of high and low air pressure spectrums encompassing the Earth.
- Insolation is the primary factor that drives formation of pressure belts. At the equator, high insolation leads to thermal expansion of air. This forms a low-pressure belt at equator. The air then ascends in this region. Low insolation and thermal contraction of air is the reason for high pressure at the poles.
- Rotation of Earth leads to deflection of winds, resulting in a decrease in pressure. This leads to formation of low-pressure belts in the subpolar regions and of high-pressure belts in the subtropical regions.
- Jet Streams- These Jet Streams are responsible for pushing the air downwards and formation of the high-pressure belt in the sub-tropics.
- Season variations caused by apparent movement of the Sun leads to variations in these belts. In the northern hemisphere, they move southwards in winter and northwards in summer.



Major Pressure Belts and Wind System

Q.9) Consider the following statements:

- 1. The pressure gradient is strong where the isobars are close to each other.
- 2. Coriolis force acts parallel to the Pressure Gradient force.

Select the correct answer using the codes given below:

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.9) Solution: (a)

Explanation

- The velocity and direction of the wind respond to the combined effect of three forces the pressure gradient force, the frictional force, and the Coriolis force.
- The rate of change of pressure with respect to distance is the pressure gradient. The **pressure gradient is strong where the isobars are close to each other** and is weak where the isobars are apart. Hence, **Statement 1 is correct.**
- The Coriolis force acts perpendicular to the pressure gradient force. At the equator, the Coriolis force is zero. Hence, statement 2 is incorrect.

Name of local winds		Location	
1.	Sirocco	i	Central Asia
2.	Shamal	ii	Africa
3.	Norte	iii	North America
4.	Karaburan	iv	Middle East

Q.10) Match the following

Select the correct answer from the codes given below:

- a) 1- i; 2- iii; 3- ii; 4- iv
- b) 1- iii ; 2-iv; 3-ii; 4-i

- c) 1-ii; 2-iv; 3-iii; 4-i
- d) 1- iv; 2- ii; 3- iii; 4-i

Q.10) Solution: (c)

Explanation



Q.11) Consider the following statements about Jet Streams:

- 1. Jet Streams occur in the Northern Hemisphere only.
- 2. Jet Streams are the result of interaction between air masses.
- 3. Jet Streams create cyclonic conditions in the Northern Hemisphere and anti-cyclonic conditions in the Southern Hemisphere.

Select the correct code

- a) Only 1 statement is correct
- b) Only 2 statements are correct
- c) All statements are correct
- d) None of the statements are correct

Q.11) Solution: (a)

Explanation

- Jet streams are relatively narrow bands of strong wind in the upper levels of the atmosphere. The winds blow from west to east in jet streams. The flow often shifts seasonally to north and south. They are present in both hemispheres. Hence, Statement 1 is incorrect.
- The 50°-60° N/S region has the polar jet stream while the subtropical jet is located around 30°N.
- Jet streams follow the boundaries between hot and cold air masses. Since these hot and cold air boundaries are most pronounced in winter, jet streams are the strongest for both the northern and southern hemisphere winters. **Hence, statement 2 is correct.**
- During the winter, thermal contrast increases, as does the intensity of the high-pressure centre at the pole. It accelerates the formation of Jet Streams, as well as their extension and velocity.
- Troughs create upper-level divergence which is associated with convergence at the surface (low pressure cyclonic conditions) and ridges create upper-level convergence which is associated with divergence at the surface (high pressure anti-cyclonic conditions) i.e., Cyclonic flow at trough and anti-cyclonic at crest/ridge. So, cyclonic and anti-cyclonic conditions are present in every jet stream in both hemispheres. So, statement 3 is incorrect.



Figure 9.14 Idealized view of divergence and convergence aloft that supports cyclonic and anticyclonic circulation at the surface

Q.12) Consider the following with respect to Rossby waves:

- 1. Rossby waves are phenomenon is observed in both atmosphere and oceans.
- 2. Rossby waves cause the cyclonic and anti-cyclonic circulation seen near jet streams.
- 3. Rossby waves are caused due to rotation of the Earth.

How many of the above statements is/are correct?

- a) Only 1 statement is correct
- b) Only 2 statements are correct
- c) All statements are correct
- d) None of the statements are correct

Q.12) Solution: (c)

Explanation

- Rossby Waves are massive meanders in the atmosphere, also referred to as planetary waves, which have a significant impact on the weather.
- Rossby waves are natural phenomenon in the **atmosphere and oceans** due to **rotation of earth**. Thus, **Statement 1 and 3 are correct.**
- They bring the atmosphere back into equilibrium by transporting heat from the tropics toward the poles and cold air from poles toward the tropics.
- They split at times and form eddies. These become the cyclonic and anti-cyclonic circulation seen near jet streams. Thus, **Statement 2 is correct.**



Q.13) Consider the following with respect to Easterly and Westerly Jet Streams

- 1. Easterly jet stream is seasonal while westerly jet stream is present throughout the year.
- 2. The Easterly Jet Stream is present only in the Northern Hemisphere.
- 3. The easterly jet stream shifts southward during the southwest monsoon period.

Which of the above statements is/are correct?

- a) Only 1 and 2
- b) Only 2 and 3
- c) Only 1 and 3
- d) 1, 2 and 3

Q.13) Solution: (a)

Explanation

- Westerly jet streams They move in the upper troposphere to the north of the subtropical high-pressure belt in both the hemisphere that is above 30 degrees to 35-degree latitude. Their circulation is from west to east and is more regular than the polar front jet stream. It flows through most of the year and is produced by the rotation of the earth. It creates the high-pressure zone in the mid-latitudes by pushing air down.
- The Tropical Easterly Jet Stream is a seasonal Jet Stream, unlike the Westerlies which are permanent. So, Statement 1 is correct.
- The Tropical Easterly Jet Stream is found in the northern hemisphere in summer over southern Asia and northern Africa between 5° and 20°N. It flows from east to west over peninsular India at 6 – 9 km and over the Northern African region. Hence, Statement 2 is correct.
- The easterly jet stream steers the tropical depressions into India. These depressions play a significant role in the distribution of monsoon rainfall over the Indian subcontinent.
- In India, the **influence of the easterly jet stream starts in June over the Southern part.** In August, it is confined to 15°N latitude, and in September up to 22° N latitude. Hence, the influence of the easterly jet stream keeps increasing towards the north during the southwest monsoon period. So, **Statement 3 is incorrect.**

Q.14) Which of the following can be seen as an impact of jet streams?

- 1. Distribution of Monsoon
- 2. Cyclones and Anticyclones
- 3. Clouds in stratosphere

4. Dryness in certain areas

Select the correct answer from the codes given below:

- a) Only 1 and 2
- b) Only 1, 2 and 3
- c) Only 2, 3 and 4
- d) All of the above

Q.14) Solution: (d)

Explanation

Jet streams severely affect weather conditions. Jet Streams can have any of the following impact on weather of a region:

- i. They substantially contribute to **formation of cyclones, anticyclones,** storms, and depressions and influence their behaviour. The cyclones intensify when the jet streams are positioned above them.
- ii. Recently, it has been proposed that gravity waves emitted from **highly unbalanced jet streams at the tropopause level** can also lead to significant mesoscale cooling in the Arctic middle stratosphere leading to formation of polar stratospheric clouds (PSCs).
- iii. The **easterly jet stream** steers the tropical depressions into India. These depressions play a significant **role in the distribution of monsoon rainfall** over the Indian subcontinent.
- iv. The **high-pressure condition** induced by the jet stream can lead to **dryness** in certain areas.

Q. 15) These are black or dark grey clouds present very near to the surface of the earth. These are extremely dense and opaque to the rays of the sun. Sometimes, the clouds are so low that they seem to touch the ground. They are treated as shapeless masses of thick vapour.

Which of the following types of clouds is described in the above passage?

- a) Cirrus
- b) Cumulus
- c) Nimbus
- d) Stratus

Q. 15) Solution: (c)

Explanation

- **Cumulus**: This is a vertical cloud with a rounded top and horizontal base, typical of humid tropical regions, associated with up-rising convectional currents. Its great white globular masses may look grey against the sun but it is a fair-weather cloud.
- **Cirrus:** This looks fibrous like cotton wool in the blue sky. They exist in patches and can be seen scattered here and there and have a flat base. It indicates fair weather and often gives a brilliant sunset.
- Nimbus: It is also known as a 'rain cloud'. It brings continuous rain, snow or sleet. In case of cumulonimbus, its black and white globular masses can be seen in a range of shapes and is frequently seen in tropical afternoons. When its cauliflower top spreads out like an anvil, it is also referred to as a 'thunder-cloud' and brings convectional rain, accompanied by lightning and thunder.
- **Stratus:** These are layered clouds covering large portions of the sky. These clouds are generally formed either due to loss of heat or the mixing of air masses with different temperatures.

Q. 16) Consider the following statements:

- 1. Photochemical smog is observed due to pollution in urban areas during winters.
- 2. Inversion of temperature is a prerequisite for photochemical smog formation.

Which of the above statements is/are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.16) Solution: (d)

- Photochemical smog, also known as summer smog, is a type of smog that is produced when **solar UV radiations interacts with the pollutants present in the atmosphere.** It usually manifests as a brown haze.
- It requires neither smoke nor fog and thus is not related to inversion of atmospheric temperature. It is simply because of high concentration of certain pollutants present in the urban atmosphere interacting with sunlight. Hence, statement 2 is incorrect.
- Common examples of **primary pollutants** include **oxides of nitrogen** and **most VOCs** (volatile organic compounds).

- Common examples of **secondary pollutants** include **tropospheric ozone**, and peroxyacyl nitrates (often abbreviated to PAN). Ozone in the stratosphere protects us from harmful ultraviolet radiation but it is detrimental to human health when it is present on the ground level.
- It is most commonly seen in highly populated cities placed in **relatively warm climates**. Furthermore, photochemical smog is most prominently visible **during the mornings and afternoons.** Thus, **statement 1 is incorrect.**

Q. 17) Consider the following statements:

- 1. Tropical cyclones cannot originate over land.
- 2. Presence of Coriolis force and large variations in the vertical wind speed are essential conditions for tropical cyclones to exist.
- 3. The cyclones near equator are more destructive than those which cross 20°N latitude due to availability of more warm oceanic surfaces near equator.

Select the correct answer from the codes given below:

- a) Only 1 statement is correct
- b) Only 2 statements are correct
- c) All 3 statements are correct
- d) None of the statements are correct

Q. 17) Solution: (a)

- Tropical cyclones originate and intensify over warm tropical oceans. Large sea surface with temperature higher than 27° C is a prerequisite for cyclone formation. Thus, cyclones cannot originate over land. Thus, **Statement 1 is correct.**
- Coriolis force causes circular motion of air & prevents all the air from rushing into the low-pressure centre. This helps formation of cyclone. At the equator, Coriolis force is negligible and hence cyclones do not form there.
- The variations in vertical wind speed must be minimum for the cyclone to survive. So, statement 2 is incorrect.
- The cyclones, which cross 20°N latitude generally, recurve and they are more destructive. Near the equator, the cyclones are less destructive as they have just started acquiring the energy and are still growing. So, **Statement 3 is correct.**

Q. 18) The formation of cyclones is lesser during southwest monsoon. Why?

- a) The temperature of oceanic surface reduces post monsoon rainfall.
- b) The ITCZ having shifted northwards hinders cyclone formation
- c) Strong vertical wind shear due to easterly jet stream.
- d) Lack of divergence of air in upper troposphere.

Q.18) Solution: (c)

Explanation

- The southwest monsoon is characterized by the presence of strong easterly winds in the upper troposphere (above 9 km). This results in large vertical wind shear. **Strong vertical wind shear inhibits cyclone development during monsoons.**
- During this season, the low-pressure systems up to the intensity of depressions can form along the monsoon trough (ITCZ), which extends from northwest India to the north Bay of Bengal. These systems make landfall very quickly which is also one of the reasons for their non-intensification into intense cyclones.
- As per recent studies, Ocean warming is increasing the chances of cyclone formation in the Indian seas, close to the monsoon onset and withdrawal periods.

Q.19) In climatology, 'Blocking Highs' are used to refer to:

- a) Mountains that cause orographic rainfall
- b) Very slow moving anti-cyclones
- c) Severe cyclones in higher latitudes
- d) Stratospheric clouds that block the formation of ozone

Q.19) Solution: (b)

- Anti-cyclones are high pressure systems. Areas of high pressure can sometimes be very slow moving, almost stationary. Such a region of slow-moving air can prevent other, faster moving pressure systems from moving into a region. They are known as 'blocking highs' or blocking anticyclones because they obstruct the flow of temperate cyclones in mid-latitudes.
- The region beneath a blocking high often experiences the same kind of weather for a long period (several weeks) and can also lead to prolonged droughts.

In Europe, for example, blocking highs over Western, Russia, Eastern Europe and Scandinavia have caused long, severe winters.

• In Anti-cyclones, air blows outwards in a **clockwise direction in the Northern hemisphere** and anticlockwise direction in the southern hemisphere.

Q. 20) Consider the following statements:

- 1. Extra tropical cyclone starts with front formation, whereas tropical cyclones get their energy from warm oceans.
- 2. Extra tropical cyclones are speedier than tropical cyclones.

Which of the above statements are correct?

- a) Only 1
- b) Only 2
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.20) Solution: (a)

- Extra-tropical cyclone, also known as wave cyclone or mid-latitude cyclone, is a type of storm system formed in middle or high latitudes, in regions of large horizontal temperature variations called frontal zones. Tropical cyclones form over warm oceans. Hence, statement 1 is correct.
- When the pressure drops along the front, the warm air moves northwards and the cold air move towards the south setting in motion an anti-clockwise cyclonic circulation. The cyclonic circulation leads to a well-developed extra-tropical cyclone, with a warm front and a cold front.
- Extra-tropical cyclones usually move in the **west to east direction in the Northern** hemisphere.
- Pattern of wind direction in extra-tropical cyclones is **anti-clockwise in the northern hemisphere.**
- They cover a larger area and can originate over the land and sea.
- The wind velocity in a tropical cyclone is much higher and it is more destructive. Thus, statement 2 is incorrect.

Q.21) Consider the following statements about PM YUVA (Young, Upcoming and Versatile Authors) 2.0 Scheme

- 1. The scheme functions under the aegis of the Department of Higher Education, the Ministry of Education.
- 2. The National Book Trust is the implementing agency of the scheme.
- 3. The scheme aims to mentor and train young and budding authors below the age of 30 years.

Choose the correct statements:

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

Q.21) Solution (b)

Explanation:

- The **Ministry of Education, Department of Higher Education, launched YUVA 2.0** Prime Minister's Scheme for Mentoring Young Authors. **Hence statement 1 is correct.**
- The National Book Trust (NBT), India, as the implementing agency under MoE will ensure the phasewise execution of the scheme under well-defined stages of mentorship. Hence statement 2 is correct.
- The scheme is an Author Mentorship programme to train young and budding authors (below 30 years of age) in order to promote reading, writing and book culture in the country, and project India and Indian writings globally. Hence statement 3 is correct.
- In view of the significant impact of the first edition of YUVA with large scale participation from young and budding authors in 22 different Indian languages and English, YUVA 2.0 is now being launched.
- The launch of YUVA 2.0 (Young, Upcoming and Versatile Authors) is in tune with the Prime Minister's vision to encourage the youth to understand and appreciate India's democracy.

Source: CLICK HERE

Q.22) Consider the following statements with respect to 'Emergency Credit Line Guarantee Scheme'

- 1. ECLGS is under the operational domain of the Department of Financial Services (DFS), Ministry of Finance.
- 2. First-time borrowers too can raise funds under this scheme.
- 3. 100% guarantee is provided by the National Credit Guarantee Trustee Company (NCGTC).

Choose the correct statements:

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

Q.22) Solution (c)

Explanation:

- ECLGS is under the operational domain of the Ministry of Finance, Department of Financial Services (DFS). It was announced as part of the Atma Nirbhar Bharat Package in 2020 with the objective to help businesses including MSMEs to meet their operational liabilities and resume business in view of the distress caused by the COVID-19 crisis. Hence statement 1 is correct.
- First-time borrowers and Non-Performing Asset (NPA) accounts cannot raise funds under the scheme. Hence statement 2 is not correct.
- 100% guarantee is provided by the National Credit Guarantee Trustee Company (NCGTC) to Member Lending Institutions (MLIs) – banks, financial institutions and Non-Banking Financial Companies (NBFCs). Hence statement 3 is correct.

Source: <u>CLICK HERE</u>

Q.23) Consider the following statements about 'United Nations Human Rights Council'

- 1. The members of the General Assembly elect the members of the Human Rights Council
- 2. It traditionally meets thrice a year in April, August and December
- 3. The Council undertakes a periodic review of all UN member states, called the Universal Periodic Review (UPR).

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Choose the incorrect statements:

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

Q.23) Solution (d)

Explanation:

- The **Council consists of 47 members**, **elected yearly by the General Assembly** for staggered **three-year terms**. The term of each seat is three years, and no member may occupy a seat for more than two consecutive terms. **Hence statement 1 is correct.**
- The UNHRC holds regular sessions three times a year, in March, June, and September. Hence statement 2 is not correct.
- The UNHRC can decide at any time to hold a special session to address human rights violations and emergencies, at the request.
- An important component of the Council consists of a periodic review of all 193 UN member states, called the Universal Periodic Review (UPR). Hence statement 3 is correct.
- The mechanism is based on reports coming from different sources, one of them being contributions from nongovernmental organisations (NGOs). Each country's situation will be examined during a three-and-a-half hour debate.

Source: CLICK HERE

Q.24) Consider the following statements about Next Generation Launch Vehicle (NGLV)

- 1. It is a two stage reusable heavy lift vehicle
- 2. It will feature semi-cryogenic propulsion for the booster stages
- 3. It can carry 50 tonne payload to Geostationary Transfer Orbit.

Choose the correct statements:

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

Q.24) Solution (b)

Explanation:

- ISRO is developing a Next-Gen Launch Vehicle (NGLV). NGLV is understood to be a cost efficient, three-stage to orbit, reusable heavy-lift vehicle with a payload capability of ten tonnes to Geostationary Transfer Orbit (GTO). Hence statement 1 is not correct.
- NGLV will feature semi-cryogenic propulsion (refined kerosene as fuel with liquid oxygen (LOX) as oxidiser) for the booster stages which is cheaper and efficient. Hence statement 2 is correct.
- It can carry 10 tonne payload to Geostationary Transfer Orbit. Hence statement 3 is not correct.

Source: CLICK HERE

Q.25) Consider the following statements about Kalanamak Rice

- 1. Kalanamak is a traditional variety of paddy with black husk and strong fragrance.
- 2. It is usually grown in Terai region of north-eastern Uttar Pradesh and in Nepal.

Choose the correct statements:

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

Q.25) Solution (c)

Explanation:

- Kalanamak is a **traditional variety of paddy with black husk and strong fragrance**. It is considered a gift from Lord Buddha to the people of Sravasti when he visited the region after enlightenment. **Hence statement 1 is correct.**
- The traditional Kalanamak rice is protected under the **Geographical Indication (GI) tag** system. Grown in 11 districts of the Terai region of north-eastern Uttar Pradesh and in Nepal. Hence statement 2 is correct.

Source: <u>CLICK HERE</u>

IASBABA'S 60 DAYS RARE SERIES 2023 - DAY 19 TEST (GEOGRAPHY)

Q.26) 95% of the students in a class have taken Marketing, 80% have chosen Finance, 84% have chosen operations (ops), and 90% have chosen Human Resources (HR). What is the maximum and minimum percentage of people who have chosen all of the four?

- a) 80% and 56%
- b) 95% and 53%
- c) 80% and 49%
- d) 80% and 51%

Q.26) Solution (c)

Explanation:

Finding the maximum percentage is easy. If F < O < H < M, then the percentage of people who have taken all 4 should be 80% and this is the maximum value it can take.

For the value to be minimum, the numbers should be as far 'apart' as possible. Let us do this iteratively. First, let us take Marketing and Finance, and see if we can find the minimum percentage of students who should have taken both

When M and F are as far 'apart' as possible M \cap F would be minimum. And the minimum value would be 80% + 95% - 100% = 75%.

Now, let us start with this $M \cup F$ and add Ops to the mix.

Now, the minimum value of $M \cap F \cap O$ would be when these are as far 'apart' as possible. And the minimum value would be 75% + 84% – 100% = 59%.

Adding HR also to the mix, we get -

The minimum possible value of $M \cap F \cap O \cap H = 59\% + 90\% - 100\% = 49\%$.

As a formula, the minimum value is 100% - (100% - 95%) - (100% - 80%) - (100% - 84%) - (100% - 90%).

= 100% - 5% - 20% - 16% - 10% = 100% - 51% = 49%.

Q.27) A dishonest milkman professes to sell his milk at cost price but he mixes it with water and there by gains 25%. The percentage of water in the mixture is

- a) 18%
- b) 20%
- c) 25%
- d) 30%

Q.27) Solution (b)

Explanation:

Here the milkman gains 25% i.e.1/4

This means, for every 5 litres of milk he sells 1 litre of it contains water

So, the percentage of water in the mixture = $(1/5) \times 100 = 20\%$

Q.28) In a group of people, 28% of the members are young while the rest are old. If 65% of the members are literates, and 25% of the literates are young, then the percentage of old people among the illiterates is nearest to

- a) 66
- b) 59
- c) 63
- d) 68

Explanation:

In a group 28% are young, 72% are old

In the same group 65% are literates and 35% are illiterates

Young literates = 1/4 (65%) = 16.25%, so remaining 11.75% are young illiterates

Out of 35% illiterates, 11.75% is young and remaining 23.25% are old illiterates

Q.28) Solution (a)

So, 23.25/35 × 100 ≅ 66

Q.29) 8% of the people eligible to vote are between 18 and 21. In an election 85% of those eligible to vote who were between 18 and 21 actually voted. In that election, people between 18 and 21 who actually voted were what percent of those people eligible to vote?

- a) 4.2
- b) 6.4
- c) 6.8
- d) 8

Q.29) Solution (c)

Explanation:

Let the people eligible to vote be P

Then people eligible to vote between 18 and 21 = 8P/100

In the election people who voted between 18 and 21 = 85/100 * 8P/100

Required percentage = {[85/100 * 8P/100]/P} * 100 = 6.8%

Read the following passage and answer the item that follow. Your answer to these items should be based on the passages only

Passage 1

The concept of 'creative society' refers to a phase of development of a society in which a large number of potential contradictions become articulate and active. This is most evident when oppressed social groups get politically mobilised and demand their rights. The upsurge of the peasants and tribals, the movements for regional autonomy and self-determination, the environmental movements, and the women's movements in the developing countries are signs of emergence of creative society in contemporary times. The forms of social movements and their intensity may vary from country to country and place to place within a country. But the very presence of movements for social transformation in various spheres of a society indicates the emergence of a creative society in a country.

Q.30) What does the author imply by "creative society"?

- 1. A society where diverse art forms and literary writings seek incentive.
- 2. A society where social inequalities are accepted as the norm.
- 3. A society where a large number of contradictions are recognised.
- 4. A society where' the exploited and the oppressed groups grow conscious of their human rights and upliftment.

Select the correct answer using the codes given below:

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

Q.30) Solution (c)

Explanation:

Consider these – "The upsurge of the peasants and tribals, the movements for regional autonomy and self-determination" and "a society in which a large number of potential contradictions become articulate and active"; you have the answer.