



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

INSTA STATIC QUIZ



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

MARCH 2023

Table of Contents

1. POLITY	2
2. GEOGRAPHY	6
3. ECONOMY	10
4. ART AND CULTURE.....	27
5. HISTORY.....	29
6. ENVIRONMENT	31

UPSC CSE 2021 FINAL RESULTS

Insights IAS toppers from various online and offline courses



								
GAMINI SINGLA AIR 3	UTKARSH DWIVEDI AIR 5	YASHARTH SHEKHAR AIR 12	DIKSHA JOSHI AIR 19	PUSAPATI SAHITYA AIR 24	SAKSHAM GOEL AIR 27	MANTRI MOURYA BHARADWAJ AIR 28	AVINASH V AIR 31	SHRADHA SHUKLA AIR 45

A Spectacular result with 38 Ranks in top 100 !

WWW.INSIGHTSONINDIA.COM

1. Polity

- 1) Consider the following statements regarding the Governor of a State.
1. Governor is a Constitutional office subordinate to the Central Government.
 2. According to the Constitution, one of the qualifications for a person to be appointed as a Governor is, he/she should not belong to a state where he/she is appointed.
 3. The appointment of Governors is based on the Canadian Constitution.

Which of the above statements is/are correct?

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

Solution: c)

The governor is neither directly elected by the people nor indirectly elected by a specially constituted electoral college as is the case with the president. He is appointed by the president by warrant under his hand and seal. In a way, he is a nominee of the Central government. But, as held by the Supreme Court in 1979, the office of governor of a state is not an employment under the Central government. **It is an independent constitutional office and is not under the control of or subordinate to the Central government.**

The American model, where the Governor of a state is directly elected, was dropped and the **Canadian model**, where the governor of a province (state) is appointed by the Governor-General (Centre), was accepted in the Constituent Assembly.

The Constitution lays down only two qualifications for the appointment of a person as a governor. These are:

1. He should be a citizen of India.
2. He should have completed the age of 35 years.

Additionally, two **conventions** have also developed in this regard over the years. First, he should be an outsider, that is, **he should not belong to the state where he is appointed**, so that he is free from the local politics. Second, while appointing the governor, the president is required to consult the chief minister of the state concerned, so that the smooth functioning of the constitutional machinery in the state is ensured. However, both the conventions have been violated in some of the cases.

- 2) Consider the following statements regarding Motion of Thanks.
1. It is addressed at the beginning of every session of the Parliament.
 2. It is addressed by the Leader of the House.
 3. The motion is put to vote in both the houses of the parliament.

Which of the above statements is/are incorrect?

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

Solution: a)

Motion of Thanks: **The first session after each general election and beginning of the first session of each year is addressed by the president.** In this address, the president outlines the policies and programmes of the government in the preceding year and ensuing year. This **address of the president**, is **discussed in both the Houses of Parliament** on a motion called the 'Motion of Thanks'. At the end of the discussion, the motion is put to vote. This motion must be passed in the House. Otherwise, it amounts to the defeat of the government.

- 3) Which one of the following amendments empowered the president of India to send back the advice of Council of Ministers for reconsideration?
- 39th Amendment
 - 40th Amendment
 - 42nd Amendment
 - 44th Amendment

Solution: d)

Forty-Fourth Amendment Act, 1978

It Provided that the President may require the Council of Ministers to reconsider such advice, either generally or otherwise, and the President shall act in accordance with the advice tendered after such reconsideration.

- 4) Which of the following were the suggestions made by Swaran Singh Committee to be included as Fundamental Duties?
- Duty to pay taxes
 - Casting vote
 - Family Planning

Select the correct answer code:

- 1, 2
- 1 only
- 2, 3
- 1, 2, 3

Solution: b)

Swaran Singh Committee suggested the incorporation of eight Fundamental Duties in the Constitution.

Certain recommendations of the Committee were not accepted and hence, not incorporated in the Constitution. These include:

- Parliament may provide for the imposition of such penalty or punishment as may be considered appropriate for any non-compliance with or refusal to observe any of the duties
 - No law imposing such penalty or punishment shall be called in question in any court on the ground of infringement of any of Fundamental Rights or on the ground of repugnancy to any other provision of the Constitution
 - Duty to pay taxes** should also be a Fundamental Duty of the citizens
- 5) Consider the following statements regarding Committee on Private Members' Bills and Resolutions.
- The committee classifies bills and allocates time for discussion on bills and resolutions introduced by private members.
 - This is a special committee of the Lok sabha only.
 - In Lok sabha it is chaired by the Deputy Speaker.

Which of the above statements is/are correct?

- 1 only
- 1, 2
- 1, 3
- 1, 2, 3

Solution: d)

This committee **classifies bills and allocates time for the discussion on bills and resolutions introduced by private members** (other than ministers). This is a **special committee of the Lok Sabha** and consists of 15 members including the **Deputy Speaker as its chairman**. The Rajya Sabha does not have any such committee. **The same function in the Rajya Sabha is performed by the Business Advisory Committee of that House.**

- 6) Consider the following statements regarding the suspension of MLAs in the State Legislature.
1. The Constitution stipulates that the State Legislative Assembly may declare vacant the seat of a member who is absent for 60 days without permission.
 2. According to The Representation of the People Act, 1951, a bye-election for filling any vacancy shall be held within a period of one year from the date of the occurrence of the vacancy.
 3. During suspension, a member continues to hold office, but only loses their voice in the legislature.

Which of the above statements is/are correct?

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

Solution: c)

Article 190(4) of the Constitution, stipulates that the House may declare vacant the seat of a member who is absent for 60 days without permission.

Also, the Representation of the People Act, 1951, says any vacancy in the House has to be filled up through a by-election **within six months of its occurrence.**

During suspension, a member continues to hold office, but only loses their voice in the legislature.

- 7) Consider the following statements regarding the Office of the Vice President of India.
1. The Constitution states that the Vice-President shall be the ex-officio Chairman of the *House of the People*.
 2. The office of the Vice-President of India ranks next to the Chief Justice of India in the order of precedence.
 3. The Vice-President shall be elected by the members of an electoral college consisting of the members of both Houses of Parliament in accordance with the system of proportional representation by means of the single transferable vote.

Which of the above statements is/are correct?

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

Solution: d)

Article 63 of the Constitution states that “there shall be a Vice-President of India”. Under Article 64, the **Vice-President “shall be ex officio Chairman of the Council of the States” (Rajya Sabha).**

Article 65 says that “in the event of the occurrence of any vacancy in the office of the President by reason of his death, resignation or removal, or otherwise, the Vice-President shall act as President until the date on which a new President...enters upon his office”.

The Vice-President shall also discharge the functions of the President when the latter is unable to do so “owing to absence, illness or any other cause”.

During this period, the Vice-President shall “have all the powers and immunities of the President and be entitled to... (the) emoluments, allowances and privileges” that are due to the President. **The office of the Vice-President of India is the second-highest constitutional office after that of the President, and ranks second in the order of precedence.**

Article 66 lays down the process of the election of the Vice-President.

It says the **Vice-President** “shall be elected by the members of an electoral college consisting of the members of **both Houses of Parliament in accordance with the system of proportional representation by means of the single transferable vote** and the voting at such election shall be by secret ballot”.

In the system of proportional representation by means of the single transferable vote, the elector has to mark preferences against the names of the candidates.

8) Consider the following statements.

1. A legislation can be implemented even without the rules being notified.

2. As per the Manual on Parliamentary Work, in case the Ministries are not able to frame the rules within the prescribed period of six months after a legislation is passed, “they should seek extension of time from the Committee on Subordinate Legislation stating reasons for such extension” which cannot be more than for three months at a time.

Which of the above statements is/are incorrect?

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

Solution: a)

The legislation cannot be implemented without the rules being notified.

As per the Manual on Parliamentary Work, in case the Ministries/Departments are not able to frame the rules within the prescribed period of six months after a legislation is passed, “they should seek extension of time from the Committee on Subordinate Legislation stating reasons for such extension” which cannot be more than for three months at a time.

9) Article 66(3) of the Constitution of India says No person shall be eligible for election as Vice-President unless he/she

- 1. Is a citizen of India
- 2. Is qualified for election as a member of the Council of States
- 3. Must not be less than 30 years of age.

Select the correct answer code:

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

Solution: a)

Article 66(3) says “No person shall be eligible for election as Vice-President unless he — (a) is a citizen of India; (b) **has completed the age of thirty-five years**; and (c) is qualified for election as a member of the Council of States”.

10) The Rajya Sabha does not have a procedure for moving of

- 1. Censure motion
- 2. Adjournment motion
- 3. No-confidence motion

Select the correct answer code:

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

Solution: c)

Statement 1 and Statement 2 are not possible because **these are motions that censure the government, and Rajya Sabha does not enjoy this power.**

A no-confidence motion is a parliamentary motion which is moved in the Lok Sabha against the entire council of ministers, stating that they are no longer deemed fit to hold positions of responsibility due to their inadequacy in some respect or their failure to carry out their obligations.

2. Geography

1) Consider the following statements regarding Ravines in India.

1. Ravines in India are a geological feature formed millions of years ago when the peninsular plate pressed against the Himalayas.
2. Almost all of India's ravines are found in the vicinity of the Vindhyas.
3. Ravines get aggravated by soil erosion.

Which of the above statements is/are correct?

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

Solution: d)

Ravines in India are a geological feature formed millions of years ago when the peninsular plate pressed against the Himalayas. Almost all of India's ravines are found in the vicinity of the Vindhyas, with over 60 per cent being in Uttar Pradesh, Madhya Pradesh, Gujarat and Rajasthan, as per the National Remote Sensing Centre, Hyderabad.

However, **ravines get aggravated by soil erosion**, mostly caused by a flowing waterbody. The adjacent land gets eroded to form narrow depressions with sharp slopes. Over time, ravines widen, rendering land uncultivable and infertile with the erosion of the topsoil.



2) Consider the following statements:

1. The folds of the Great Himalayas are symmetrical in nature.
2. The part of the Himalayas lying between Sutlej and Kali rivers is known as Kumaon Himalayas.
3. The longitudinal valley lying between lesser Himalaya and the Shiwaliks are known as Duns.

Which of the above statements is/are correct?

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

Solution: a)

The folds of the Great Himalayas are asymmetrical in nature.

The part of the Himalayas lying between Sutlej and Kali rivers is known as Kumaon Himalayas.

The longitudinal valley lying between lesser Himalaya and the Shiwaliks are known as Duns. Ex Chandigarh-Kalka dun, Nalagarh dun, Dehra Dun, Harike dun and the Kota dun, etc. Dehra Dun is the largest of all the duns with an approximate length of 35-45 km and a width of 22-25 km.

3) Consider the following statements regarding the physiography of India.

1. The majority of the core of the Greater Himalayas is made up of limestone rocks.
2. The trough of the Narmada river is interposed between the Vindhyan and the Satpura ranges.
3. The Deccan Plateau receives heavy rainfall throughout the year as it falls on the windward side of major hills of Central and Southern India.

Which of the above statements is/are correct?

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

Solution: b)

Statement 1: Limestones can't bear the heavy weight of Himalayas. **The core is actually made of granite rocks.**

Statement 2: Narmada river is one of the rivers in India that flows in a rift valley, flowing west between the Satpura and Vindhya ranges.

Statement 3: The **Deccan Plateau** is a large triangular plateau, bounded by the Vindhyas to the north and flanked by the Eastern and Western Ghats.

This region is mostly semi-arid as it lies on the leeward side of both Ghats. Much of the Deccan is covered by thorn scrub forest scattered with small regions of deciduous broadleaf forest.

4) Which of the following statement is correct regarding Complex volcano.

- a) A volcano that has an associated volcanic dome, either in its crater or on its flanks
- b) Volcanoes that have steep sided cones formed from layers of ash and lava flows.
- c) Volcanoes that are low with gently sloping sides and are formed from layers of lava.
- d) None of the above

Solution: a)

A complex volcano, also called a compound volcano, is defined as one that consists of a complex of two or more vents, or a **volcano that has an associated volcanic dome, either in its crater or on its flanks.**



complex volcano

5) Which of the following currents are cold currents

1. Humboldt Current
2. California Current
3. North Atlantic Drift
4. Benguela Current

Select the correct codes:

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

Solution: b)

North Atlantic Drift is a warm current.

6) Consider the following statements regarding Anticyclones.

1. Anticyclone is a region where the atmospheric pressure is high compared with that of adjacent areas.
2. Their extent is always small.
3. In the northern hemisphere the general wind circulation is anti-clockwise round the anticyclone.

Which of the above statements is/are correct?

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

Solution: c)

Anticyclone is a region where the atmospheric pressure is high compared with that of adjacent areas. In the northern hemisphere the general wind circulation is clockwise round the anticyclone, while in the southern hemisphere it is anticlockwise. **The extents are generally large** and the effects are also pronounced.

7) Tidal currents are

- a) Strong tides which has high potential to extract tidal energy.
- b) Combination of tides and ocean current moving together.
- c) Deep water ocean currents associated with neap tides.
- d) Tides which are channelled between islands, bays and estuaries.

Solution: d)

Tidal currents are the tides which are channelled between islands, bays and estuaries. Tidal current has significance in power generation.

8) Consider the following statements:

1. Area of Pacific Ocean is almost equal to area of all other oceans combined.
2. More diversity of landforms can be observed in oceans than continents.

Which of the above statements is/are incorrect?

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

Solution: a)

Although Pacific Ocean is the largest ocean than other oceans, its area is far lesser than all other oceans area combined.

Continental slope, Guyots, Trenches and other landforms can be observed in the **ocean which is far diverse than the continents.**

9) Consider the following statements regarding Jet Streams.

1. Jet streams are narrow bands of strong winds that flow over thousands of kilometres predominantly from east to west.
2. Major jet streams are found near the upper levels of the atmosphere, around 9 to 16 km from the earth's surface.
3. In India, the Tropical jet stream influences the formation and duration of the summer monsoon.

4. Jet streams can aid in the faster travelling of Aircrafts.

Which of the above statements is/are correct?

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

Solution: c)

Jet streams are narrow bands of strong winds that flow over thousands of kilometres from west to east. Major jet streams are found near the upper levels of the atmosphere, around 9 to 16 km from the earth's surface, and can reach speeds of over 320 kph.

The jet streams shift to the north or south depending on the season. During winters, the wind current is the strongest. They are also closer to the Equator during winter.

The major jet streams are the Polar Front, Subtropical, and Tropical jet streams. **In India, the Tropical jet stream influences the formation and duration of the summer monsoon.**

Most commercial planes fly at the jet stream level, and a **strong jet stream can provide a potent tailwind to a flight travelling from west to east.**

10) Equatorial counter-currents are unique because

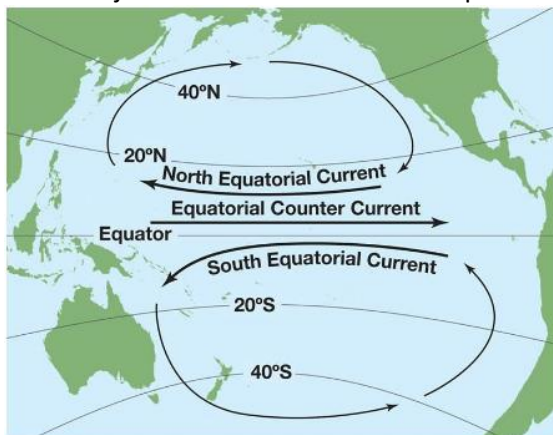
- a) They flow in a direction opposite to that of the surface winds
- b) They circulate from equator to the poles uninterruptedly.
- c) Their travel speed is not affected by the ocean depth.
- d) They are the only current to be sandwiched between two eastward-flowing ocean currents.

Solution: a)

Equatorial counter-currents are major surface flows that carry water eastward in the Atlantic, Indian, and Pacific Oceans.

They are located near the equator and are sandwiched between two westward-flowing currents, the North Equatorial Current and the South Equatorial Current.

Equatorial counter-currents are unique, in that they flow in the opposite direction of the surface winds. The other major surface currents in the tropics flow in the same direction as the prevailing winds.



3. Economy

- 1) The Department of Financial Services (DFS) oversees several key programs/initiatives. It provides policy support to
1. Public Sector Insurance Companies (PSICs)
 2. National Bank for Agriculture and Rural Development (NABARD)
 3. Export-Import Bank of India (EXIM Bank)
 4. Industrial Finance Corporation of India (IFCI)

Select the correct answer code:

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

Solution: d)

The Department of Financial Services (DFS) provides policy support to the Public Sector banks (PSBs), **Public Sector Insurance Companies (PSICs)** and Financial Institutions (FIs) like **National Bank for Agriculture and Rural Development (NABARD)**, Small Industries Development Bank of India (SIDBI), National Housing Bank (NHB), **Export-Import Bank of India (EXIM Bank)**, National Bank for Financing Infrastructure and Development, India Infrastructure Finance Company Ltd. (IIFCL), **Industrial Finance Corporation of India (IFCI)**, National Credit Guarantee Trustee Company Ltd. (NCGTC) etc.

It also monitors the performance of these PSBs, PSICs and DFIs and undertakes policy formulation in respect of the Banking and Insurance Sector in India.

This Department deals with legislative and policy issues pertaining to the concerned regulatory bodies i.e. the Reserve Bank of India (RBI), the Insurance Regulatory and Development Authority of India (IRDAI) and the Pension Fund Regulatory and Development Authority (PFRDA). DFS also deals with the legislative framework relating to debt recovery.

[Source](#)

- 2) India's growth's story from the eve of Independence to the liberalization phase is largely termed as 'Hindu rate of growth'. It refers to
- a) Non inclusive growth story of India before 1990's liberalization.
 - b) Religious belief of the successive government right from the independence.
 - c) The phenomenon of sluggishness in growth rate of Indian economy before 1990's.
 - d) Irrational developmental agenda driven by majoritarian society.

Solution: c)

'Hindu' rate of growth was coined to refer to the **phenomenon of sluggishness in growth rate of Indian economy** (3.5 per cent observed persistently during 1950s through 1980s).

The term, which owes to Professor Raj Krishna, Member, Planning Commission, captured popular imagination and was used synonymously to describe inadequacy of India's growth performance.

- 3) Consider the following statements regarding cess and surcharges.
1. The Constitution does permit the Centre to levy cess and surcharges beyond the basic taxes and duties in extraordinary situations.
 2. Cess and surcharges go to the divisible pool of taxes.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only

- c) Both 1 and 2
d) Neither 1 nor 2

Solution: a)

The **Constitution does permit the Centre to levy cess and surcharges beyond the basic taxes and duties in extraordinary situations. These additional taxes do not go to a divisible pool.**

Divisible pool refers to the taxes of the central government that it should share with the sub national or state governments in accordance with the recommendations of the Finance Commission.

- 4) Consider the following statements regarding Formalisation of economy.
1. Formalisation of the economy means bringing companies under the regulatory regime of government and subject to laws related to manufacturing and income tax.
 2. It leads to more tax revenues with an increase in tax-to-GDP ratio.
 3. It establishes rule of law and provide benefits of labour laws to entrepreneurs and workers.

Which of the above statements is/are correct?

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

Solution: d)

- **Formalisation of the economy means bringing companies under the regulatory regime of government and subject to laws related to manufacturing and income tax.**
- **Formalisation leads to more tax revenues with an increase in tax-to-GDP ratio.**
- Formalisation provides a level-playing field for tax-compliant entities, expanding the tax base so that the burden falls more equitably on all the players rather than a select few.
- Transitioning economy towards formality brings benefits by **establishing the rule of law and provide benefits of labour laws to entrepreneurs and workers.**
- It enforces minimum wages and proper documentation of benefits by the employer. Formal jobs also end up ensuring the dignity of labour; enable productivity improvements, as well as access to formal training.

- 5) Consider the following statements regarding consumer durables.
1. Goods like food and clothing, and services like recreation that are consumed when purchased by their ultimate consumers are called consumer durables.
 2. They undergo wear and tear with gradual use and often need to be preserved, maintained and renewed.

Which of the above statements is/are incorrect?

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

Solution: a)

Of the final goods, we can distinguish between consumption goods and capital goods. **Goods like food and clothing, and services like recreation that are consumed when purchased by their ultimate consumers are called consumption goods or consumer goods.**

We may note here that some commodities like television sets, automobiles or home computers, although they are for ultimate consumption, have one characteristic in common with capital goods – they are also **durable. That is, they are not extinguished by immediate or even short period consumption; they have a relatively long life as compared to articles such as food or even clothing.** They also **undergo wear and tear** with

gradual use and often need repairs and replacements of parts, i.e., like machines they also need to be preserved, maintained and renewed. That is why we call these goods **consumer durables**.

6) Consider the following statements.

1. National income is the sum of all incomes earned by all citizens of India.
2. Gross Value Added (GVA) is the sum of a country's GDP and net of subsidies and taxes in the economy.
3. GVA calculates the national income from the supply side by looking at the value added in each sector of the economy.

Which of the above statements is/are correct?

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

Solution: c)

National income is not the sum of all incomes earned by all citizens, but only those incomes which accrue due to participation in the production process.

Gross Value Added (GVA):

GVA is the sum of a country's GDP and net of subsidies and taxes in the economy.

It calculates the national income from the supply side by looking at the value added in each sector of the economy.

GVA is defined as the value of output minus the value of intermediate consumption and is a measure of the contribution to growth made by an individual producer, industry or sector.

It provides the rupee value for the number of goods and services produced in an economy after deducting the cost of inputs and raw materials that have gone into the production of those goods and services.

Gross Value Added = GDP + subsidies on products – taxes on products.

7) Gross domestic product (GDP) can be said as the aggregate of which of the following

1. Private final consumption expenditure (PFCE)
2. Gross Fixed Capital Formation (GFCF)
3. Government Final Consumption Expenditure (GFCE)
4. Net Export (NX)

Select the correct answer code:

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

Solution: d)

What does new GDP data shows:

- The money spent by people in their private capacity. It typically accounts for 56 percent of all GDP and is called "**private final consumption expenditure**" (PFCE).
- Money spent by companies and government towards making investments such as building a new office, building a new road etc. It accounts for 32 percent of total GDP and is called **Gross Fixed Capital Formation (GFCF)**.
- Money spent by the government in its day to day expenses such as paying salaries. It accounts for 11 percent and is called **Government Final Consumption Expenditure (GFCE)**.
- Money spent by Indians on foreign goods(imports) subtracted from the money spent by foreigners on Indian goods(exports). As India imports more than it exports, **Net Export (NX)** is small and negative.

GDP=PFCE+GFCF+GFCE+NX

www.insightsonindia.com

- 8) In Economy, Kuznets' theory is related to
- Fiscal deficit
 - Inequality
 - GDP per capita
 - Population growth

Solution: b)

While there is an argument in literature that **inequalities** are a manifestation of the average level of income, as **explained by the Kuznets' theory**.

Kuznets believed that inequality would follow an inverted "U" shape as it rises and then falls again with the increase of income per-capita.

- 9) Intermediary goods and services are discounted from the calculation of the Gross National Product (GNP) to
- give a better picture of inflation figures
 - avoid double counting
 - remove depreciation from the calculation
 - deduce GDP deflator

Solution: b)

Gross National Product (GNP)

GNP measures the total monetary value of the output produced by a country's residents. Therefore, any output produced by foreign residents within the country's borders must be excluded in calculations of GNP, while any output produced by the country's residents outside of its borders must be counted.

GNP does not include intermediate goods and services to avoid double-counting since they are already incorporated in the value of final goods and services.

- 10) Consider the following statements.

- Transfer payments are receipts which the residents of a country receive without having to make any present or future payments in return.
- Transfer payments include gifts or grants given by foreign governments and remittances received from abroad.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: c)

The current account records exports and imports in goods and services and transfer payments.

- Transfer payments are receipts which the residents of a country receive 'for free', without having to make any present or future payments in return.**
- They consist of remittances, gifts and grants. They could be official or private.**

- 11) Consider the following statements Marginal Standing Facility (MSF).

- Marginal Standing Facility (MSF) is a window for scheduled banks to borrow overnight from the RBI in an emergency situation when interbank liquidity dries up completely.
- Under MSF, banks are not allowed to use the securities that come under Statutory Liquidity Ratio (SLR) in the process of availing loans from RBI.

Which of the above statements is/are correct?

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

Solution: a)

Marginal Standing Facility:

- **MSF is a window for scheduled banks to borrow overnight from the RBI in an emergency situation when interbank liquidity dries up completely.**
- Under interbank lending, banks lend funds to one another for a specified term.

Under MSF, banks are also allowed to use the securities that come under Statutory Liquidity Ratio (SLR) in the process of availing loans from RBI.

12) Which of the following are eligible to avail the facility of the Liquidity Adjustment Facility (LAF) extended by the Reserve Bank of India (RBI)?

1. Scheduled Commercial Banks (SCBs)
2. Regional Rural Banks (RRBs)
3. Primary Dealers (PDs)

Select the correct answer code:

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

Solution: d)

- **Liquidity Adjustment Facility (LAF) is a facility extended by RBI to the scheduled commercial banks (including RRBs which meet certain criteria) and Primary Dealers (PDs) to avail of liquidity in case of requirement or park excess funds with RBI in case of excess liquidity on an overnight basis against the collateral of G-Secs including State Development Loans (SDLs).**
- Basically, LAF enables liquidity management on a day to day basis.
- The operations of LAF are conducted by way of repurchase agreements with RBI being the counter-party to all the transactions. The interest rate in LAF is fixed by RBI from time to time.
- LAF is an important tool of monetary policy and liquidity management.

13) Which of these actions by the Reserve Bank of India (RBI) may lead scheduled commercial banks to lend less money to their retail customers?

1. Reduction in Cash Reserve Ratio
2. Increase in Repo Rate
3. Increase in Statutory Liquidity Ratio

Select the correct answer code:

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

Solution: a)

RBI uses various policy instruments to bring forth a healthy Reserve deposit ratio (rdr) in commercial banks. The first instrument is the **Cash Reserve Ratio** which specifies the fraction of their deposits that banks must keep with RBI. There is another tool called **Statutory Liquidity Ratio** which requires the banks to maintain a given fraction of their total demand and time deposits in the form of specified liquid assets.

A decline in CRR gives banks more cash at hand, so more lending. An increase in SLR gives less cash at hand, so less lending. An increase in repo rate makes borrowing unattractive for customers since banks now face a higher rate of funds, so less lending from banks.

14) Capital Adequacy Ratio (CAR) is employed to promote which of the following by banks?

1. Higher recapitalization
2. Greater leverage
3. Safer investments

Select the correct answer code:

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

Solution: a)

Capital Adequacy Ratio (CAR) is the ratio of a bank's capital in relation to its risk-weighted assets and current liabilities. It is decided by central banks and bank regulators to **prevent commercial banks from taking excess leverage and becoming insolvent in the process.**

The Basel III norms stipulated a capital to risk weighted assets of 8%. So it promotes safer investments by banks that they can maintain the ratio.

So, 2 is incorrect. It has no correlation with CAR.

15) The speculative demand for money, ordinarily, is inversely proportional to the

- a) money supply
- b) change in gold prices
- c) interest rate
- d) national stock indices

Solution: c)

When the interest rate is very high everyone expects it to fall in future and hence anticipates capital gains from bond-holding. Hence people convert their money into bonds. Thus, speculative demand for money is low. When the interest rate comes down, more and more people expect it to rise in the future and anticipate capital loss. Thus, they convert their bonds into money giving rise to a high speculative demand for money. Hence **speculative demand for money is inversely related to the rate of interest.**

16) 'Money illusion', a phrase coined by Keynes, is mainly caused by an ignorance of the real detrimental effect of

- a) high unemployment
- b) inflation
- c) low interest rates
- d) recession

Solution: b)

Money illusion is an economic theory positing that people have a tendency to view their wealth and income in nominal dollar terms, rather than in real terms. In other words, **it is assumed that people do not take into account the level of inflation in an economy**, wrongly believing that a dollar is worth the same as it was the prior year.

Money illusion is sometimes also referred to as price illusion.

17) Consider the following statements.

1. Core inflation represents the long run trend in the price level, including food and fuel inflation.
2. In measuring core inflation, transitory price changes are usually excluded.

Which of the above statements is/are correct?

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

Solution: b)

Core inflation represents the **long run trend in the price level**. In measuring long run inflation, **transitory price changes should be excluded**. One way of accomplishing this is by **excluding items frequently subject to volatile prices, like food and energy**.

18) Consider the following statements.

1. Phillips Curve is an economic concept stating that inflation and unemployment have a stable and inverse relationship.
2. Stagflation is an economic scenario where an economy faces high inflation and low growth and high unemployment at the same time.

Which of the above statements is/are incorrect?

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

Solution: d)

Stagflation is an economic scenario where an economy faces both high inflation and low growth (and high unemployment) at the same time.

The Phillips curve states that inflation and unemployment have an inverse relationship. Higher inflation is associated with lower unemployment and vice versa.

19) Consider the following statements.

1. When an economy goes through a phase of high inflation, there are chances that the unemployment rate will fall.
2. High inflation can lower the purchasing power of the consumer.
3. The RBI monetary policy has a direct impact on controlling “cost-push” inflation.

Which of the above statements is/are correct?

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

Solution: a)

There is a trade-off between inflation and unemployment. Typically, **when an economy goes through a phase of high inflation, chances are that the unemployment rate will fall**. That’s because firms, enticed by higher prices, try to ramp up production by recruiting more people.

High inflation may be robbing people of their purchasing power.

It is also important to understand that **monetary policy does not have a direct solution to controlling such “cost-push” inflation**. It cannot make fuel prices lower by raising interest rates. All it can do is to control demand in the economy.

20) The portfolio of a Hedge fund can include

1. currencies
2. bonds
3. stocks
4. derivatives

Select the correct answer code:

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

Solution: d)

These are basically mutual funds (MFs) which invest in various securities in order to contain or hedge risks. They are investment vehicles that take big bets on a wide range of assets and specialise in sophisticated techniques of investment.

A hedge fund portfolio consists of asset classes such as derivatives, equities, bonds, currencies, and convertible securities. Hence, they are also considered as alternative investments. As a collection of assets that strives to 'hedge' risks to investors' money against market ups and downs, they need aggressive management.

21) The actual liabilities of the Union government include which of the following

1. Loans taken for the recapitalisation of banks
2. Borrowings by PSUs
3. Capital expenditures of various Ministries.

Select the correct answer code:

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

Solution: a)



In addition to **the borrowings by PSUs**, the actual liabilities of the government would include **loans taken for the recapitalisation of banks**.

Capital expenditure creates assets for the government and causes reduction in liabilities for the government.

22) The committed expenditures of the government usually includes which of the following?

1. Pensions
2. Interest payments
3. Investment expenditures

Select the correct answer code:

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

Solution: c)

The expenditure of the governments from which they cannot deny (as they have already committed them to pay) are known as committed expenditures. The liabilities such as 'interest' (of the internal as well as external loans) and 'pension' (of the retired personnel of the governments) are examples of such expenditures.

23) High tax expenditure is mainly caused by

- a) low tax base
- b) red tape or bureaucracy

- c) large tax exemptions
- d) progressive tax collection system

Solution: c)

Tax Expenditures, as the word might indicate, does not relate to the expenditures incurred by the Government in the collection of taxes. Rather it refers to the opportunity cost of taxing at concessional rates, or the opportunity cost of giving exemptions, deductions, rebates, deferrals credits etc. to the tax payers. Tax expenditures indicate how much more revenue could have been collected by the Government if not for such measures. In other words, it shows the extent of indirect subsidy enjoyed by the tax payers in the country.

For instance, there is a significant divergence in India between the official rates of taxes and the actual or effective rate of taxation.

This arises on account of the exemptions to the tax rate.

This is called as a high tax expenditure.

24) Printing currency is not considered a good means of deficit financing due to which of the following reasons:

1. It increases inflation proportionally.
2. It decreases aggregate demands.
3. Decreases flow of money in the economy.

Select the correct answer code:

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

Solution: c)

Deficit financing

- The act/process of financing/supporting a deficit budget by a government is deficit financing. It is done by external or internal borrowing or by printing currency.
- Printing Currency is the last resort for the government in managing its deficit.

Printing fresh currencies does have other damaging effects on the economy:

- It **increases inflation proportionally**. (India regularly went for it since the early 1970s and usually had to bear double digit inflations).
- Printing new currency notes **increases flow of money in the economy**.
- Since deficit financing raises aggregate expenditure and, hence, **increases aggregate demand**, the danger of inflation looms large.

25) Additional Grant is given by the Parliament to the executive when

- a) there is excess expenditure in a financial year considering the amount granted for that service in the budget
- b) an unexpected demand upon the resources of India has arisen which cannot be stated with the details ordinarily given in a budget
- c) an extra expenditure upon some new service not contemplated in the budget for that year is sought
- d) the government seeks advance money before the enactment of the budget to meet current expenditures

Solution: c)

Additional Grant: It is granted when a need has arisen during the current financial year for additional expenditure upon some new service not contemplated in the budget for that year.

25) Movements or changes in India's foreign exchange reserves occur due to

1. Purchase and sale of foreign exchange by the RBI

2. Income arising out of the deployment of the foreign exchange reserves
3. External aid receipts of the Central Government

Select the correct answer code:

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

Solution: d)

Movements in the FCA occur mainly on account of **purchase and sale of foreign exchange by the RBI, income arising out of the deployment of the foreign exchange reserves, external aid receipts of the Central Government** and changes on account of revaluation of the assets.

26) Consider the following statements regarding Anti-dumping duty.

1. Anti-dumping measures are taken to ensure fair trade for domestic industries.
2. Anti-dumping duty is meant for level playing field between domestic producers of a product and foreign producers of the same product who can afford to sell it at a lower price because of the subsidy they receive from their government.

Which of the above statements is/are incorrect?

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

Solution: b)

- Anti-dumping duty is different from countervailing duty. **The countervailing duty is imposed in order to counter the negative impact of import subsidies to protect domestic producers.**
- Countervailing Duties (CVDs) are tariffs levied on imported goods to offset subsidies made to producers of these goods in the exporting country.
- **CVDs are meant to level the playing field between domestic producers of a product and foreign producers of the same product who can afford to sell it at a lower price because of the subsidy they receive from their government.**
- Anti-dumping duty is a customs duty on imports providing a protection against the dumping of goods at prices substantially lower than the normal value whereas Countervailing duty is a customs duty on goods that have received government subsidies in the originating or exporting country.
- **Anti-dumping measures are taken to ensure fair trade and provide a level playing field to the domestic industry.**

27) In India's balance of payment (BoP), which of the following are categorised under capital account?

1. Foreign Portfolio Investment
2. Short-term credit
3. Trade in services
4. External commercial borrowings

Select the correct answer code:

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

Solution: b)

The BoP is essentially the overall ledger of how much rupee was demanded by the rest of the world and how much foreign currency (that is, currencies of all countries) was demanded by Indians.

The BoP is divided into two “accounts” — **current and capital**. Current account refers to all transactions that are related to current consumption; capital account refers to transactions for investment purposes.

Each bucket is sub-divided into smaller buckets. This allows policymakers and analysts to better understand the dynamics of the relative demand for rupees (by foreigners) and forex (among Indians).

All transactions involving export or import of goods (cars, gadgets etc) are logged under the “trade account” within the current account.

But people also trade in “invisibles”. Essentially, this refers to export and import of services (such as an Indian company selling software to an American firm, or a European bank providing financial services to some Indians, or simply Indians working abroad sending back money to their families in India).

The capital account, on the other hand involves investments (such as an Indian buying land in the US, or a Japanese firm investing in the Indian stock exchange) as well as exchange of loans between India and other countries.

INDIA'S BALANCE OF PAYMENT (\$ bn)	
April-December 2021	
Current account deficit	-26.6
Trade deficit (Goods export – import)	-135.6
Invisibles surplus (a + b + c)	109.0
a. Services	79.2
b. Transfers	59.3
c. Income	-29.3
Capital account surplus (a to f)	90.1
a. Foreign investment	24.9
(i) Foreign Direct Investment (FDI)	26.5
(ii) Foreign Portfolio Investment (FPI)	-1.6
b. Banking Capital	12.6
c. Short term credit	13.3
d. External Assistance	2.7
e. External Commercial Borrowings	4.9
f. Other items in capital account	31.7
Total change in forex	-63.5

Source: RBI, Express Research

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

28) Consider the following statements regarding Reserve assets.

1. A reserve asset must be readily available, controlled by policymakers, and easily transferable.
2. Currencies like U.S. dollar and Gold bullion are classified as Reserve assets.
3. In India, the Reserve assets have always been less than 50 percent of India's international financial

assets.

Which of the above statements is/are correct?

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

Solution: c)

Reserve assets are currencies or other assets, such as gold, that can be readily transferable and are used to balance international transactions and payments.

A reserve asset must be readily available, physical, controlled by policymakers, and easily transferable.

The U.S. dollar is a reserve currency, meaning it is widely held as a reserve asset around the world.

Reserve assets accounted for 68.5% of India's international financial assets in September 2021.

- 29) Exchange rate is the price of one currency in terms of another currency. The exchange rate depends upon
1. International commodity prices
 2. Interest rates in the country and global majors like USA
 3. Political stability
 4. Forex reserves with RBI
 5. The extent of convertibility of the currency

Select the correct answer code:

- a) 2, 3, 4
- b) 1, 3, 4, 5
- c) 1, 4, 5
- d) 1, 2, 3, 4, 5

Solution: d)

The exchange rate depends upon many factors. They are:

1. Inflation
2. Interest rates in the country and global majors like USA
3. International commodity prices
4. Political stability
5. Forex reserves with RBI
6. Growth rate of the economy
7. Future potential
8. Foreign trade profile which includes import dependency
9. Monetary policy of countries like USA
10. External debt levels, particularly the short-term commercial debt level
11. The extent of convertibility of the currency
12. Fiscal and Current account deficits

30) Consider the following statements.

1. Real GDP is the GDP derived after adding the effect of inflation.
2. The difference between the real and nominal GDP shows the levels of inflation in the year.

Which of the above statements is/are correct?

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

Solution: b)

Real GDP, which is the GDP after taking away the effect of inflation, is a derived metric. All Budget calculations start with the nominal GDP.

$Real\ GDP = Nominal\ GDP - Inflation\ Rate$

However, from the perspective of the common people, real GDP is what matters. **The difference between the real and nominal GDP shows the levels of inflation in the year.**

31) Consider the following statements regarding Currency Swap Agreement.

1. A currency swap is a transaction in which two parties exchange an equivalent amount of money with each other but in different currencies.
2. Currency swap agreement will help a country tide over its foreign exchange crisis.
3. Currency swap agreements between countries help in reducing its reliance on the International Monetary Fund.

Which of the above statements is/are correct?

- a) 1, 2
- b) 1, 3

- c) 2, 3
- d) 1, 2, 3

Solution: d)

A currency swap is a transaction in which two parties exchange an equivalent amount of money with each other but in different currencies. The parties are essentially loaning each other money and will repay the amounts at a specified date and exchange rate. The purpose could be to hedge exposure to exchange-rate risk, to speculate on the direction of a currency, or to **reduce the cost of borrowing in a foreign currency.**

Currency swap agreements between countries help in reducing its reliance on the International Monetary Fund.

32) Consider the following statements.

1. Inflation is more likely to have a significant positive effect on a currency's value and foreign exchange rate.
2. Inflation is independent to interest rates.

Which of the above statements is/are incorrect?

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

Solution: c)

The rate of inflation in a country can have a major impact on the value of the country's currency and the rates of foreign exchange it has with the currencies of other nations. However, inflation is just one factor among many that combine to influence a country's exchange rate.

Inflation is more likely to have a significant negative effect, rather than a significant positive effect, on a currency's value and foreign exchange rate.

An extremely high inflation rate is very likely to impact the country's exchange rates with other nations negatively.

Inflation is closely related to interest rates, which can influence exchange rates.

33) Consider the following statements regarding Special Drawing Right (SDR).

1. The Special Drawing Right (SDR) is an interest-bearing international reserve asset created by the IMF.
2. The value of the SDR is directly determined by supply and demand in the market.
3. It can be held and used by member countries, private entities or individuals.

Which of the above statements is/are correct?

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

Solution: c)

The Special Drawing Right (SDR) is an **interest-bearing international reserve asset** created by the IMF in 1969 to supplement other reserve assets of member countries.

The SDR is based on a basket of international currencies comprising the **U.S. dollar, Japanese yen, euro, pound sterling and Chinese Renminbi**. It is not a currency, nor a claim on the IMF, but is potentially a claim on freely usable currencies of IMF members. **The value of the SDR is not directly determined by supply and demand in the**

market, but is set daily by the IMF on the basis of market exchange rates between the currencies included in the SDR basket.

It can be held and used by member countries, the IMF, and certain designated official entities called "prescribed holders"—**but it cannot be held, for example, by private entities or individuals**. Its status as a reserve asset derives from the commitments of members to hold, accept, and honor obligations denominated in SDR. The SDR also serves as the unit of account of the IMF and some other international organizations.

34) Consider the following statements regarding GDP deflator.

1. The GDP deflator is basically a measure of inflation.
2. It helps show the extent to which the increase in gross domestic product has happened on account of higher prices rather than increase in output.
3. It covers only those goods and services directly consumed by households.

Which of the above statements is/are correct?

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

Solution: b)

The GDP deflator, also called implicit price deflator, is a measure of inflation. It is the ratio of the value of goods and services an economy produces in a particular year at current prices to that of prices that prevailed during the base year.

This ratio helps show the extent to which the **increase in gross domestic product has happened on account of higher prices** rather than increase in output.

Since the deflator covers the entire range of goods and services produced in the economy — as against the limited commodity baskets for the wholesale or consumer price indices — it is seen as a **more comprehensive measure of inflation**.

Changes in consumption patterns or introduction of goods and services are automatically reflected in the GDP deflator. This allows the GDP deflator to absorb changes to an economy's consumption or investment patterns. Often, the trends of the GDP deflator will be similar to that of the CPI.

35) Structural adjustment programs (SAPs) that aims to adjust the country's economic structure and improve international competitiveness, is related to

- a) World Economic Forum (WEF)
- b) World Trade Organization (WTO)
- c) The United Nations Conference on Trade and Development (UNCTAD)
- d) International Monetary Fund (IMF)

Solution: d)

Structural adjustment programs (SAPs) consist of loans (**structural adjustment loans; SALs**) provided by **the International Monetary Fund (IMF)** and the World Bank (WB) to countries that experience economic crises. Their purpose is to adjust the country's economic structure, improve international competitiveness, and restore its balance of payments. SAPs are created with the stated goal of reducing the borrowing country's fiscal imbalances in the short and medium term or in order to adjust the economy to long-term growth.

36) Multilateral Investment Guarantee Agency (MIGA).

1. The Multilateral Investment Guarantee Agency (MIGA) is a member of the World Bank Group, whose mandate is to promote cross-border investment in developing countries by providing guarantees to investors and lenders.
2. MIGA guarantees does not protect investments against non-commercial risks.

3. It provides extensive knowledge of emerging markets and of international best practice in environmental and social management.

Which of the above statements is/are correct?

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

Solution: b)

The Multilateral Investment Guarantee Agency (MIGA) is a member of the **World Bank Group**. Our mandate is to **promote cross-border investment in developing countries by providing guarantees (political risk insurance and credit enhancement) to investors and lenders.**

Our guarantees protect investments against noncommercial risks and can help investors obtain access to funding sources with improved financial terms and conditions. The Agency derives its unique strength from the World Bank Group and from its structure as an international organization whose **shareholders** include most countries of the world. This enables us to provide an umbrella of deterrence against government actions that could disrupt projects, and assist in the resolution of disputes between investors and governments. We also add value through our ability to offer clients **extensive knowledge of emerging markets and of international best practice in environmental and social management.**

37) International Development Association (IDA) funds are allocated to the recipient countries in relation to their

- 1. human development potential
- 2. per capita income
- 3. population

Select the correct answer code:

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

Solution: b)

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

For a country to access IDA resources, it must be in a situation of relative poverty as indicated by its **per capita income** falling below the IDA operational cut-off, \$1,255 in FY23, and/or lack creditworthiness for IBRD borrowing. **IDA funds are allocated to the recipient countries in relation to their income levels** and record of success in managing their economies and their ongoing IDA projects. IDA's lending terms are highly concessional, meaning that IDA credits carry no or low interest charges.

38) Consider the following statements regarding Harmonised System of Nomenclature (HSN) code.

- 1. It is a multipurpose international product nomenclature developed by the World Trade Organization (WTO).
- 2. It was developed with the vision of facilitating the classification of goods all over the World in a systematic manner.
- 3. In India, HSN codes apply to Customs and GST.

Which of the above statements is/are correct?

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

Solution: b)

- HSN stands for Harmonised System of Nomenclature code. It is mandatory for both B2B and B2C tax invoices on the supplies of Goods and Services.

- This was introduced in 1988 by the **World Customs Organization (WCO)**. This was introduced for a **systematic classification of goods both national and international**. This is a 6-digit code that classifies various products. India has been using HSN codes since 1986 to classify commodities for Customs and Central Excise.
- **HSN codes apply to Customs and GST**. The codes prescribed in the Customs tariff are used for the GST purposes too. HSN is used all over the world. There are different HSN codes for various commodities.
- HSN codes remove the need to upload details about the goods which makes filing of GST returns easier.
- HSN code is required for anything from animal products, mineral products, plastic articles to footwear, arms and ammunition and machinery.

39) Consider the following statements regarding World Economic Forum (WEF).

1. The World Economic Forum (WEF) is a United Nations based organisation located in Geneva, Switzerland.
2. The Forum is largely funded by its partnering corporations.
3. It is known for its annual summit in Davos.
4. The Forum strives to demonstrate entrepreneurship in the global public interest.

Which of the above statements is/are correct?

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

Solution: c)

The World Economic Forum, mostly known for its annual summit in Davos, Switzerland, is a non-governmental lobbying organisation founded by economist Klaus Schwab. According to the WEF website, **“The Forum strives in all its efforts to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance.”**

The WEF is largely funded by its partnering corporations. These are generally global enterprises with annual turnover greater than \$ 5 billion.

40) Consider the following statements.

1. Inflation is closely related to interest rates, which can influence exchange rates.
2. Low interest rates most commonly attract foreign investment.
3. Low interest rates spur consumer spending and economic growth.

Which of the above statements is/are correct?

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

Solution: c)

Inflation is closely related to interest rates, which can influence exchange rates. Countries attempt to balance interest rates and inflation, but the interrelationship between the two is complex and often difficult to manage. **Low interest rates spur consumer spending and economic growth**, and generally positive influences on currency value. If consumer spending increases to the point where demand exceeds supply, inflation may ensue, which is not necessarily a bad outcome. **But low interest rates do not commonly attract foreign investment. Higher interest rates tend to attract foreign investment, which is likely to increase the demand for a country's currency.**

41) Consider the following statements regarding difference between Consumer Price Index (CPI) and GDP deflator

1. While CPI is released by Central Statistics Office (CSO), the data on GDP deflator is released by Labour Bureau.
2. GDP deflator include prices of imported goods but they are not included in CPI.

3. The weights are constant in CPI, but they differ according to production level of each good in GDP deflator.

Which of the above statements is/are correct?

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

Solution: b)

CPI may differ from GDP deflator because:

1. The goods purchased by consumers do not represent all the goods which are produced in a country. GDP deflator takes into account all such goods and services.
2. **CPI includes prices of goods consumed by the representative consumer; hence it includes prices of imported goods. GDP deflator does not include prices of imported goods.**
3. **The weights are constant in CPI – but they differ according to production level of each good in GDP deflator.**

Ministry of Statistics and Programme Implementation (MOSPI) comes out with GDP deflator in National Accounts Statistics as price indices.

42) Which of the following are the advantages of having a bullion exchange in India?

1. Bullion imports for domestic consumption can be channelized through the exchange.
2. It will offer the advantages of price discovery, transparency in disclosures, guaranteed centralised clearing and assurance of quality.
3. It will be an important step towards financialization of bullion-based products.

Select the correct answer code:

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

Solution: d)

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

What are the advantages of having a bullion exchange in India?

India International Bullion Exchange (IIBX) is India's first International Bullion Exchange set up at the GIFT City, Gandhinagar.

The IIBX will be a gateway for bullion imports into India, where **all bullion imports for domestic consumption shall be channelized through the exchange**. In addition to providing a trading avenue to various participants, a bullion exchange will also offer the **advantages of price discovery, transparency in disclosures, guaranteed centralised clearing and assurance of quality**. A bullion exchange, apart from providing standardisation and transparent mechanism, will also be an important step towards **financialization of bullion-based products**.

43) Consider the following statements.

1. The price rise which is the result of increase in the production cost is known as cost-push inflation.
2. Even if the price of one good has gone up, it is considered as inflation.
3. A mismatch between demand and supply can lead to inflation.

Which of the above statements is/are correct?

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

Solution: a)

A rise in the general level of prices is inflation. If the price of one good has gone up, it is not inflation; it is inflation only if the prices of **most** goods have gone up.

A mis-match between demand and supply pulls up prices. Either the demand increases over the same level of supply, or the supply decreases with the same level of demand and thus the situation of demand-pull inflation arise.

An increase in factor input costs (i.e., wages and raw materials) pushes up prices. **The price rise which is the result of increase in the production cost is cost-push inflation.**

44) Consider the following statements.

1. GDP is the total market value of all goods and services produced in the economy during a particular year, excluding taxes and subsidies on products.
2. Real GDP growth measures how much the production of goods and services in the economy has increased in actual physical terms during a year.
3. Nominal GDP growth helps to measure the increase in incomes resulting from rise in both production and prices.

Which of the above statements is/are correct?

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

Solution: c)

GDP is the total market value of all goods and services produced in the economy during a particular year, inclusive of all taxes and subsidies on products. The market value taken at current prices is the nominal GDP. The value taken at constant prices — that is prices for all products taken at an unchanged base year — is the real GDP.

In simple terms, real GDP is nominal GDP stripped of inflation. **Real GDP growth thus measures how much the production of goods and services in the economy has increased in actual physical terms during a year. Nominal GDP growth, on the other hand, is a measure of the increase in incomes resulting from rise in both production and prices.**

4. Art and Culture

1) Consider the following statements

1. According to this philosophy, Vedas are eternal and possess all knowledge.
2. Religion means the fulfilment of duties prescribed by the Vedas.
3. This philosophy encompasses the Nyaya-Vaisheshika systems and emphasizes the concept of valid knowledge.

The above statements are related to?

- a) Mimamsa School
- b) Vedanta School
- c) Yoga School
- d) Samkhya School

Solution: a)

Mimamsa philosophy is basically the analysis of interpretation, application and the use of the text of the Samhita and Brahmana portions of the Veda.

According to Mimamsa philosophy, Vedas are eternal and possess all knowledge, and religion means the fulfilment of duties prescribed by the Vedas.

This philosophy encompasses the Nyaya-Vaisheshika systems and emphasizes the concept of valid knowledge.

2) What does "Sarvatobhadra" type of temple in Ancient India mean?

- One which is protected from all sides.
- One with a circumambulatory path.
- One without a circumambulatory path.
- One which can be accessed from all sides.

Solution: d)

- While construction of stupas continued, Brahmanical temples and images of gods also started getting constructed.
- Often temples were decorated with the images of gods. Myths mentioned in the Puranas became part of narrative representation of the Brahmanical religion.
- Each temple had a principal image of a god. The shrines of the temples were of three kinds—(i) sandhara type (without pradikshinapatha), (ii) nirandhara type (with pradakshinapatha), and (iii) **sarvatobhadra (which can be accessed from all sides)**.

3) Which of the following religions is/are associated with Khajuraho temples?

- Jainism
- Hinduism
- Tantricism
- Buddhism

Select the correct answer using the codes given below.

- 3 only
- 1, 2, 3
- 1, 2
- 1, 2, 3, 4

Solution: b)

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

There are many temples at Khajuraho, most of them devoted to **Hindu gods**. There are some **Jain temples** as well as a Chausanth Yogini temple, which is of interest. Predating the tenth century, this is a temple of small, square shrines of roughly-hewn granite blocks, each dedicated to esoteric deities or goddesses associated with the rise of **Tantric worship** after the seventh century. Several such temples were dedicated to the cult of the yoginis across Madhya Pradesh, Odisha and even as far south as Tamil Nadu. They were built between the seventh and tenth centuries, but few have survived.

4) Consider the following places and the features associated with them.

- | | |
|----------------|-----------------------|
| 1. Khajuraho | A. Chaitya Hall |
| 2. Sanchi | B. The Stupa |
| 3. Karle caves | C. Kandariya Temple |
| 4. Deogarh | D. Dashavatara Temple |

Select the correct answer code:

- 1A, 2D, 3C, 4B
- 1D, 2C, 3B, 4A
- 1C, 2B, 3A, 4D
- 1B, 2C, 3D, 4A

Solution: c)

The **Kandariya Mahadeva Temple**, one of the best examples of temples preserved from the medieval period in India, is the largest of the western group of temples in the **Khajuraho complex** which was built by the Chandela rulers.

The group at **Karla** is one of the older and smaller of the many rock-cut Buddhist sites in Maharashtra, but is one of the best-known because of the famous "Grand Chaitya" (Cave 8), which is the largest and most completely preserved " **chaitya hall** of the period

The **Dashavatara temple** is one of the earliest Hindu stone temples located at **Deogarh**, Uttar Pradesh. Vishnu Temple shows the ornate beauty seen in Gupta style architecture.

- 5) Vasudhaiva Kutumbakam, which means "the world is one family", originally appears in
- Katha Upanishad
 - Mundaka Upanishad
 - Aitareya Upanishad
 - Maha Upanishad

Solution: d)

Vasudhaiva Kutumbakam is a Sanskrit phrase found in Hindu texts such as the **Maha Upanishad**, which means "the world is one family".

5. History

- 1) The decision to launch the Quit India movement
- Wasn't taken officially as the movement was spontaneous and sporadic in nature
 - Was taken by Gandhiji alone
 - Was ratified by the Indian National Congress (INC)
 - Was taken by the Forward Bloc

Solution: c)

After Cripps' departure, Gandhi framed a resolution calling for British withdrawal and a non-violent non-cooperation movement against any Japanese invasion.

In July 1942, the Congress Working Committee met at Wardha and resolved that it would authorise Gandhi to take charge of the non-violent mass movement. The resolution generally referred to as the 'Quit India' resolution.

The Quit India Resolution was ratified at the Congress meeting at Gowalia Tank, Bombay, on August 8, 1942.

- 2) Consider the following statements
- Maulana Azad established Mohammedan Anglo-Oriental College.
 - Kuka movement in Punjab aimed at purifying the Sikh religion by removing all the abuses, superstitions and ill-practices

Which of the above statements is/are incorrect?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: a)

Syed Ahmad Khan established Mohammedan Anglo-Oriental College.

Kuka movement in Punjab aimed at purifying the Sikh religion by removing all the abuses, superstitions and ill-practices

- 3) During the colonial period in India, what was the purpose of the Whitley Commission?
- To develop a comprehensive scheme for Civil Services in India
 - To report on existing conditions of labour and to make recommendations
 - To draw up a plan for financial reforms for India
 - To review the fitness of India for further political reforms

Solution: b)

The Royal Commission on Labour or the Whitley Commission on Labour was set up in 1929 to inquire into the **existing conditions of labour** in industrial undertakings and plantations in India.

- 4) Which of the following princely states was/were annexed using the policy of the Doctrine of Lapse?
- Jhansi
 - Mysore
 - Sambhalpur
 - Tanjore

Select the correct answer code:

- 2, 3
- 1, 3, 4
- 1, 4
- 1, 2, 3, 4

Solution: b)

The doctrine of lapse was a policy of annexation initiated by the East India Company in the Indian subcontinent about the princely states, and applied until the year 1858, the year after Company rule was succeeded by the British Raj under the British Crown.

By the use of the doctrine of lapse, the Company took over the princely states of Satara (1848), Jaitpur, **Sambalpur** (1849), Baghat (1850), Udaipur (Chhattisgarh State) (1852), **Jhansi** (1854), Nagpur (1854), **Tanjore** and Arcot (1855).

- 5) Consider the following statements regarding All India Kisan Sabha.
- Unlike other political organizations of the time, Kisan Sabha worked independently of the Indian National Congress and never associated with it.
 - It was formed by Sahajanand Saraswati in 1936.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: b)

The All India Kisan Sabha (AIKS) was an important peasant movement **formed by Sahajanand Saraswati** at the **Lucknow session of the Indian National Congress (INC)** in 1936. Swami Sahajanand, was elected the President, and N.G. Ranga, the pioneer of the kisan movement in Andhra and a renowned scholar of the agrarian problem, the General Secretary.

6. Environment

- 1) What would happen if phytoplankton of an ocean is completely destroyed for some reason?
1. The ocean as a carbon sink would be adversely affected.
 2. The density of ocean water would drastically increase.
 3. The food chains in the ocean would be adversely affected.

Which of the above statements is/are correct?

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

Solution: c)

Phytoplanktons are food factories of the ocean, it fixes atmospheric carbon dioxide in large quantities (Carbon Sink) and produce food. So, if **phytoplanktons are removed completely it leads to catastrophic failure of ocean ecosystem. It doesn't influence the density of ocean water.**

- 2) Consider the following statements regarding food chain in ecosystem.
1. In an aquatic ecosystem, larger fraction of energy flow through detritus food chain than grazing food chain.
 2. In a terrestrial ecosystem, more energy flows through grazing food chain than detritus food chain.
 3. Around 90% of energy is lost in energy flow across different trophic levels.

Which of the above statements is/are incorrect?

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

Solution: c)

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

In an aquatic ecosystem, grazing food chain is the major conduit for energy flow. As against this, in a terrestrial ecosystem, a much larger fraction of energy flows through the detritus food chain than through the grazing food chain.

When energy is passed in an ecosystem from one trophic level to the next, only ten percent of the energy will be passed. Around 90% of energy will be lost.

- 3) Which of the following play a role in the Nitrogen cycle on earth?
1. Blue-green algae
 2. Lightning
 3. Uptake of soil nutrients by plants
 4. Terrestrial Food chain

Select the correct answer code:

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

Solution: b)

Nitrogen is one of the essential constituents of all living organisms as part of proteins, chlorophyll, nucleic acids and vitamins.

The atmospheric nitrogen cannot be taken directly by plants and animals.

Certain bacteria and **blue green algae** present in the soil fix nitrogen from the atmosphere and convert into compounds of nitrogen

Lightning also fixes atmospheric nitrogen.

Nitrogen is one of the essential constituents of all living organisms as part of proteins, chlorophyll, nucleic acids and vitamins.

The atmospheric nitrogen cannot be taken directly by plants and animals. **Once nitrogen is converted into these usable compounds, it can be utilised by plants from the soil through their root system.**

Nitrogen is then used for the synthesis of plant proteins and other compounds. Animals feeding on plants get these proteins and other nitrogen compounds.

When plants and animals die, bacteria and fungi present in the soil convert the nitrogenous wastes into nitrogenous compounds to be used by plants again. Certain other bacteria convert some part of them to nitrogen gas which goes back into the atmosphere.

As a result, the percentage of nitrogen in the atmosphere remains more or less constant.

4) The biological interaction between clownfish and sea anemones denote

- a) Mutualism
- b) commensalism
- c) Amensalism
- d) Predation

Solution: a)

Clownfish breed only in sea anemones, sharing a symbiotic bond. "It is a strong, obligate symbiosis,"

"Clownfish shelter in the anemone and are the only fish that do not get stung by the nematocysts of the anemone. The anemone benefits because clownfish can defend the anemone from fish that might eat it. They never live anywhere but, in the anemone".

SIMPLIFYING IAS EXAM PREPARATION

And now the anemones, like coral reefs in general, are under direct threat from the impacts of climate change. It works like this: The anemones share another symbiotic bond, with algae. Under stress in warming waters, the algae leave the anemones. If the algae stay away too long, the anemone starve to death, which leaves the clownfish without a home.

5) Which one of the following is the best description of the term 'standing crop'?

- a) It is the total mass of living material at a particular time in an ecosystem.
- b) It is the total amount of energy produced in a food chain.
- c) It is the amount of biomass of a forest.
- d) It is the number of primary producers in an ecosystem.

Solution: a)

Standing crop is defined as the total amount or number of living things or of one kind of living thing (such as an uncut farm crop, the fish in a pond, or organisms in an ecosystem) in a particular area at any given time.

6) Consider the following statements.

1. Ecosystem is formed by the interaction of both biotic and abiotic factors.
2. Ecosystem is larger than biome and contain many biomes.

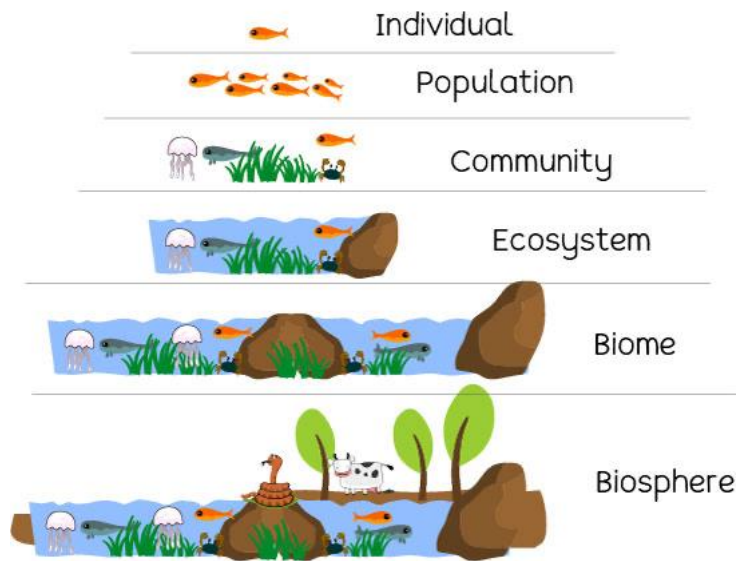
Which of the above statements is/are correct?

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

Solution: a)

An ecosystem is a system formed by the interaction of all living organisms (biotic) with each other and with the physical and chemical factors (abiotic) of the environment in which they live, all linked by the transfer of energy and material.

Biome is a larger region than an ecosystem and comprises many such ecosystems.



7) Arrange the following ecosystems in the decreasing order of biomass productivity (g per metre square per year).

1. Tropical Rainforests
2. Cultivated lands
3. Coral reefs
4. Swamps and marshes

Select the correct answer code:

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

Solution: c)



Producer	Biomass productivity (gC/m ² /yr)
Swamps and Marshes	2,500
Tropical rainforests	2,000
Coral reefs	2,000
Algal beds	2,000
River estuaries	1,800
Temperate forests	1,250
Cultivated lands	650
Tundras	140
Open ocean	125
Deserts	3

8) Living organisms respond in different ways to the abiotic stressful conditions like temperature, altitude etc. In this context, which of the following are examples of the adaptation?

1. Keoladeo National Park witnessing thousands of migratory birds in winter season.
2. Very small animals are rarely found in polar regions.
3. People living at high altitudes have a higher Red Blood Cell (RBC) account than people living on the plains.

Select the correct answer code:

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

Solution: d)

All the above are the ecological adaptations of living organisms to survive better against hostile conditions like freezing temperature, high altitude etc.,

9) Lichen is a pioneer species. What do you understand by this statement?

- a) It contributes substantially to nutrient recycling in the ecosystem.
- b) It can live in inhospitable climatic conditions.
- c) It is generally one of the first species to colonize an ecosystem.
- d) It has the ability to form symbiotic relation with a large number of species.

Solution: c)

Lichens are typically the first organisms to colonize bare rock. They are therefore the pioneer species in primary succession.

Many organisms require soil before they can colonize an area. Lichens that colonize bare rock secrete acids that break down the rock and start the soil-production process. Also, as lichens die, they provide some organic matter that also contributes to soil. Mosses can then colonize the thin soil; as mosses die, the soil thickens more allowing other hardy species to colonize. The process continues until a mature forest forms, sometimes centuries later.

10) Which of the following ecological pyramids is/are upright in pond ecosystem?

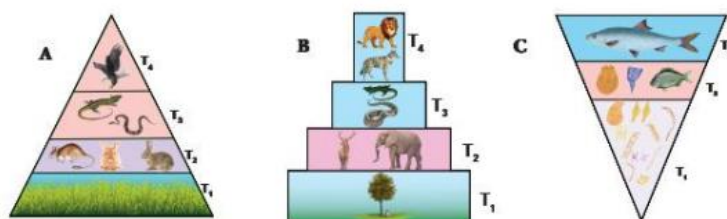
1. Pyramid of number
2. Pyramid of biomass
3. Pyramid of energy

Select the correct answer code:

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

Solution: b)

Pyramid of energy and number is upright in pond ecosystem. Pyramid of biomass is inverted in an aquatic ecosystem because the biomass of fishes far exceeds the biomass of phytoplanktons.



T₁ - Producers | T₂ - Herbivores | T₃ - Secondary consumers | T₄ - Tertiary consumers

Pyramids of biomass (dry weight per unit area) in different types of ecosystems.

Upright- A) Grassland ecosystem B) Forest ecosystem, Inverted- C) Pond ecosystem

11) Consider the following statements regarding Dead Zones.

1. Dead Zone is an area in water body that contains high concentration of oxygen.
2. It can be caused by excessive nutrient pollution from human activities.
3. Warming of the atmosphere through climate change can lead to expansion of 'dead zones' in the ocean.

Which of the above statements is/are correct?

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

Solution: c)

Dead Zone is an area in water body that contains little or no oxygen (or they are hypoxic) in bottom and near-bottom water.

Mostly they occur naturally but it **can be caused by excessive nutrient pollution from human activities** coupled with other factors.

They are well-known off western coasts of North and South America, off coast of Namibia and off west coast of India in Arabian Sea.

In recent times, **warming of the atmosphere through climate change is predicted to lead expansion of 'dead zones' in the ocean.**

12) Consider the following about Glaciers.

1. Most of the world's glaciers exist in the polar regions.
2. About two percent of all the water on Earth is frozen in glaciers.
3. The Andes Mountain range in South America contains some of the world's largest tropical glaciers.

Which of the above statements is/are correct?

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

Solution: d)

Glaciers are massive bodies of slowly moving ice. Glaciers form on land, and they are made up of fallen snow that gets compressed into ice over many centuries. They move slowly downward from the pull of gravity.

Most of the world's glaciers exist in the polar regions, in areas like Greenland, the Canadian Arctic, and Antarctica. Glaciers also can be found closer to the Equator in some mountain regions. **The Andes Mountain range in South America contains some of the world's largest tropical glaciers. About 2 percent of all the water on Earth is frozen in glaciers.**

The material carried by the glacier such as rocks big and small, sand and silt gets deposited. These deposits form glacial moraines.

Glaciers movements carve out deep hollows. **When they retreat and as the ice melts these hollows get filled up with water and become beautiful lakes in the mountains.**

13) Consider the following statements regarding dissolved oxygen in an aquatic ecosystem

1. It increases with increase in temperature of a water-body.
2. Its concentration in fresh water is usually more than the concentration of oxygen in air.
3. Snow cover of ice on water reduces dissolved oxygen concentration.

Which of the above statements is/are correct?

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

Solution: b)

Dissolved oxygen (DO) is a measure of how much oxygen is dissolved in the water - the amount of oxygen available to living aquatic organisms. The amount of dissolved oxygen in a stream or lake can tell us a lot about its water quality.

Oxygen concentrations are much higher in air, which is about 21% oxygen, than in water, which is a tiny fraction of 1 percent oxygen.

Dissolved oxygen levels decrease with increasing temperature and atmospheric oxygen content is far higher than dissolved oxygen levels.

Ice and **snow reduce the amount of sunlight reaching aquatic plants, thereby reducing photosynthesis and oxygen production.**

- 14) Tropical moist forests can be found in
1. Western slope of the Western Ghats
 2. Andaman and Nicobar Islands.
 3. North-Eastern region of India

Select the correct answer code:

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

Solution: d)

Tropical Moist Deciduous Forests

Climatic Conditions

- Annual rainfall 100 to 200 cm.
- Mean annual temperature of about 27°C
- The average annual relative humidity of 60 to 75 per cent.

Distribution

- Belt running along the **Western Ghats** surrounding the belt of evergreen forests.
- A strip along the Shiwalik range including terai and bhabar from 77° E to 88° E.
- **Manipur and Mizoram.**
- Hills of eastern Madhya Pradesh and Chhattisgarh.
- Chota Nagpur Plateau.
- Most of Odisha.
- Parts of West Bengal and
- **Andaman and Nicobar Islands.**

- 15) Which of the following trees are largely found in tropical rain forests of India?

1. Semul
2. Ebony
3. Indian laurel
4. Amla

Select the correct answer code:

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

Solution: b)

Tropical Rainforests of India, are found in the Andaman and Nicobar Islands, the Western Ghats, which fringe the Arabian Sea, the coastline of peninsular India, and the greater Assam region in the north-east. Small remnants of rainforest are found in Odisha state.

Important trees found in these forests are mahogany, Indian laurel, ebony and rosewood.

Amla and Semul are deciduous trees.

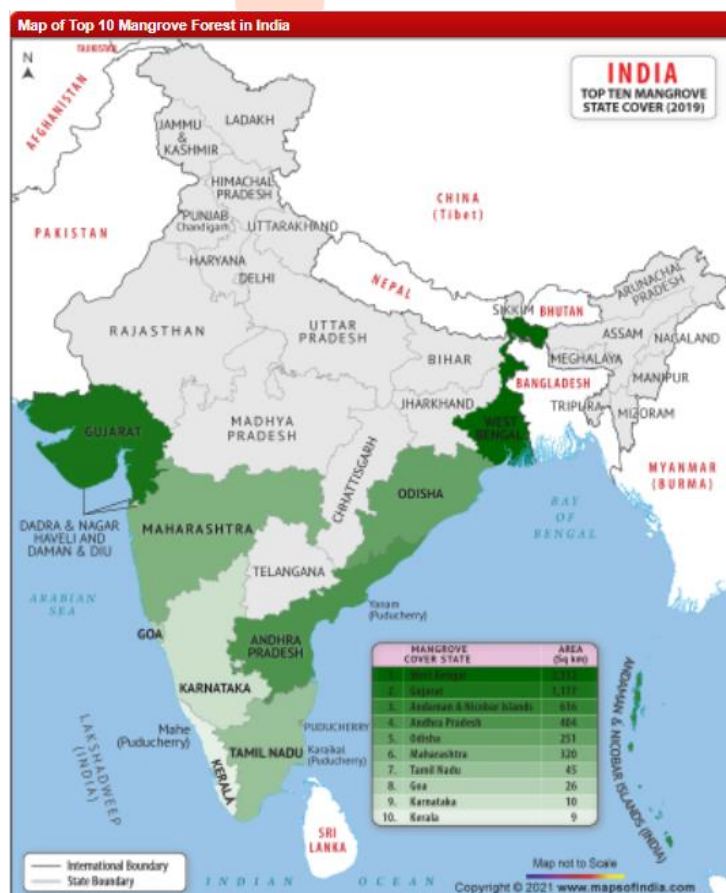
16) Mangrove Forests in India are predominantly found in which of the following states?

1. West Bengal
2. Odisha
3. Madhya Pradesh
4. Andhra Pradesh
5. Gujarat

Select the correct answer code:

- a) 1, 3, 4, 5
- b) 1, 2, 3, 4
- c) 1, 2, 4, 5
- d) 1, 2, 3, 4, 5

Solution: c)



SIGHTSIAS
Simplifying IAS EXAM PREPARATION

17) Consider the following statements regarding Ocean deoxygenation.

1. Ocean deoxygenation is the maximum reduction of oxygen minimum zones in the world's oceans as a consequence of anthropogenic emissions of carbon dioxide.
2. Oxygen is less soluble in warmer water.
3. The areas of Sea water that is depleted of dissolved oxygen is called Anoxic waters.

Which of the above statements is/are correct?

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

Solution: c)

Ocean deoxygenation is the **expansion of oxygen minimum zones** in the world's oceans as a consequence of anthropogenic emissions of carbon dioxide. The change has been fairly rapid and poses a threat to fish and other types of marine life, as well as to people who depend on marine life for nutrition or livelihood.

Ocean deoxygenation poses implications for ocean productivity, nutrient cycling, carbon cycling, and marine habitats.

Most of the excess heat from CO₂ and other greenhouse gas emissions is absorbed by the oceans. Warmer oceans cause deoxygenation both because **oxygen is less soluble in warmer water**, and through temperature driven stratification of the ocean which inhibits the production of oxygen from photosynthesis.

Anoxic waters are areas of sea water, fresh water, or groundwater that are depleted of dissolved oxygen and are a more severe condition of hypoxia.

18) Which of the following adaptations help mangrove plants to cope with their dynamic and harsh ecosystem?

- 1. Vivipary
- 2. Stilt roots
- 3. Pneumatophores

Select the correct answer code:

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

Solution: d)

Mangrove environment is highly dynamic and harsh and mangrove species are variously adapted to cope with these environmental conditions.

Breathing roots: Underground tissue of any plant requires oxygen for respiration and in mangrove environment, oxygen in soil is very limited or nil. This necessitates mangrove root system to take up oxygen from the atmosphere. For this purpose, **mangrove species have specialized above ground roots called breathing roots or pneumatophores**. These roots have numerous pores through which oxygen enters into the underground tissues. In some plants buttress roots function as breathing roots and also provide mechanical support to the tree.

Silt roots: In some mangrove species, roots diverge from stems and branches and penetrate the soil some distance away from the main stem as in the case of banyan trees. Because of their appearance and because they provide the main physical support to these they are called as stilt roots. These roots also have many pores through which atmospheric oxygen enters into the roots.

Vivipary: Saline water, unconsolidated saline soil with little or no oxygen is not a conducive environment for seeds to germinate and establish. To overcome this, mangrove species have unique way of reproduction, which is generally known as vivipary. **In this method of reproduction, seeds germinate and develop into seedlings while the seeds are still attached to the parent tree**. These seedlings are normally called as propagules and they photosynthesize while still attached to the mother tree. The parent tree supplies water and necessary nutrients. They are buoyant and float in the water for some time before rooting themselves on suitable soil.

19) Which of the following is most likely to survive in deep ocean waters?

- a) Green Algae
- b) Red Algae
- c) Brown Algae
- d) Yellow Algae

Solution: b)

Light is a limiting factor for life in deep oceans. Not all the colour components of the visible spectrum are available for marine plants living at different depths of the ocean.

Sunlight is broken into its seven component colours as it penetrates through the ocean water by dispersion. Longer wavelengths cannot penetrate deeper whereas shorter wavelengths do.

Algae use photosynthesis to manufacture food. So, the ones utilizing the short wavelength for photosynthesis survive.

Red algae have red pigment (phycoerythrin) which carries out photosynthesis using only short wavelength light found in greater depths.

They can be found as deep as 200 m in ocean water.

20) Increased Snow cover on a water body can lead to

1. Sudden spurt in phytoplankton population which are not dependent on photosynthesis
2. Improved oxygen exchange and nutrient recycling in the lake
3. A condition of winterkill causing large scale death of fishes and organisms

Select the correct answer code:

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

Solution: b)

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

Phytoplankton float on top surface of water bodies and require sunlight to thrive. Ice cover will reduce their breeding grounds and population.

The snow cover blocks exchange of nutrients and oxygen from the atmosphere.

Snow cover of ice on water body can effectively cut off light, plunging the waters into darkness.

Hence photosynthesis stops but respiration continues. Thus, in shallow lakes, oxygen gets depleted, and due to lack of oxygen there is large scale death of fishes and other organisms. This condition is known as winterkill.

21) The phenomenon of increasing concentration of a substance, such as a toxic chemical, in the tissues of tolerant organisms at successively higher levels in a food chain is known as:

- a) Biosparging
- b) Biodilution
- c) Biomagnification
- d) Bioaccumulation

Solution: c)

Biomagnification, also known as bioamplification or biological magnification, is the **increasing concentration of a substance, such as a toxic chemical, in the tissues of tolerant organisms at successively higher levels in a food chain.**

22) The constituents of the coal combustion include:

1. arsenic
2. beryllium

3. cadmium
4. manganese
5. mercury

Select the correct answer code:

- a) 1, 2, 3, 4
- b) 2, 3, 4, 5
- c) 1, 3, 4, 5
- d) 1, 2, 3, 4, 5

Solution: d)

What is Fly Ash?

Popularly known as Flue ash or pulverised fuel ash, it is a **coal combustion product**.

Composition:

Composed of the particulates that are driven out of coal-fired boilers together with the flue gases. Depending upon the source and composition of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide (SiO₂), aluminium oxide (Al₂O₃) and calcium oxide (CaO), the main mineral compounds in coal-bearing rock strata.

Minor constituents include: **arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium**, along with very small concentrations of dioxins and PAH compounds. It also has unburnt carbon.

23) Consider the following statements regarding Arctic haze.

1. Arctic haze is the phenomenon of a visible reddish-brown springtime haze in the atmosphere at high latitudes in the Arctic.
2. The occurrence of Arctic haze has been mainly due to cosmic radiation from Van Allen Radiation belts.

Which of the above statements is/are correct?

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

Solution: a)

Arctic haze is the phenomenon of a **visible reddish-brown springtime haze in the atmosphere at high latitudes in the Arctic due to anthropogenic air pollution**. A major distinguishing factor of Arctic haze is the ability of its chemical ingredients to persist in the atmosphere for significantly longer than other pollutants. Due to limited amounts of snow, rain, or turbulent air to displace pollutants from the polar air mass in spring, Arctic haze can linger for more than a month in the northern atmosphere.

24) Consider the following statements regarding Persistent organic pollutants (POPs).

1. Persistent organic pollutants (POPs) are organic compounds that are resistant to degradation through chemical, biological, and photolytic processes.
2. Persistent organic pollutants (POPs) do not travel longer distances and are concentrated in the locality where they are released.
3. Most POPs are pesticides or insecticides, and some are industrial chemicals.

Which of the above statements is/are correct?

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

Solution: c)

Persistent organic pollutants (POPs) are **organic compounds that are resistant to degradation through chemical, biological, and photolytic processes**. They are toxic chemicals that adversely affect human health and the environment around the world. Because they can be **transported by wind and water, most POPs generated in one country can and do affect people and wildlife far from where they are used and released**.

Most POPs are pesticides or insecticides, and some are also solvents, pharmaceuticals, and **industrial chemicals**.

Some of the "dirty dozen" POPs identified by the Stockholm Convention include aldrin, chlordane, heptachlor, DDT and dioxins.

25) Which of the following factors can lead to coral bleaching?

1. Water pollution and significant salinity changes
2. Higher sedimentation in the water bodies
3. Increased UV radiation

Select the correct answer code:

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

Solution: d)

The whitening of coral colonies due to the loss of symbiotic zooxanthellae from the tissues of polyps is called as Coral Bleaching.

Zooxanthellae are unicellular algae that provide colour to corals. They also provide food to corals and their deaths lead to breakdown of the symbiotic relationship between them. This breakdown of symbiotic relationship causes starvation and resultant deaths of coral polyps.

This condition exposes the white calcium carbonate skeletons of the coral colony. There are several stresses or environmental changes that may cause bleaching.

These causes include disease, excess shade, increased levels of ultraviolet radiation, sedimentation, pollution, salinity changes, and increased temperatures etc.

26) Which of the following can lead to reduction of soil organic carbon?

1. Earthquakes
2. Excessive tillage
3. Volcanoes
4. Frequent cropping
5. Urban expansion

Select the correct answer code:

- a) 1, 2, 3, 4
- b) 1, 2, 4
- c) 1, 3, 4, 5
- d) 1, 2, 3, 4, 5

Solution: d)

Reasons for the reduction of soil organic carbon:

There may be **natural factors** such as floods, **earthquakes and volcanoes**.

The **human induced factors** are:

Urban expansion

Over grazing

Excessive tillage

Land degradation due to inappropriate agriculture practices

Frequent cropping

Unscientific crop rotation
 Improper agriculture practices
 Poor irrigation and water management

27) With reference to ecological succession, the term Seral stage refers to

- First stage of primary succession in an area.
- First stage of secondary succession in areas where natural biotic communities have been destroyed.
- Intermediate stage in an ecological succession.
- Final stage in the ecological succession that is in near equilibrium with the environment.

Solution: c)

A seral stage is an intermediate stage found in ecological succession in an ecosystem advancing towards its climax community. In many cases more than one seral stage evolves until climax conditions are attained.

28) Consider the following statements regarding *Eutrophication*.

- Eutrophication* is when a body of water becomes overly enriched with minerals and nutrients which induce excessive growth of algae and in turn, increases water quality.
- Increase of phytoplankton in a water body is the response to increased levels of nutrients.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: b)

Eutrophication is when a body of water becomes overly enriched with minerals and nutrients which induce excessive growth of algae. This process may result in oxygen depletion of the water body. One example is an "algal bloom" or great **increase of phytoplankton in a water body as a response to increased levels of nutrients.** Eutrophication is often induced by the discharge of nitrate or phosphate-containing detergents, fertilizers, or sewage into an aquatic system.

29) Consider the following statements.

- An ecological niche is the unique functional role or place of a species in an ecosystem.
- No two species have exact identical niches.

Which of the above statements is/are incorrect?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: d)

A niche is the unique functional role or place of a species in an ecosystem. It is a description of all the biological, physical and chemical factors that a species needs to survive, stay healthy and reproduce.

A niche is unique for a species, which means no two species have exact identical niches. Niche plays an important role in conservation of organisms.

If we have to conserve species in its native habitat we should have knowledge about the niche requirements of the species and should ensure that all requirements of its niche are fulfilled.

30) Due to some reasons, if there is a huge fall in the population of species of butterflies, what could be its likely consequence(s)?

- Pollination of some plants could be adversely affected.

2. There could be a drastic increase in the fungal infections of some cultivated plants.
3. It could lead to a fall in the population of some species of wasps, spiders and birds.

Select the correct answer code:

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

Solution: c)

Bees and butterflies play a vital role in the pollination of plants and the production of crops by transporting pollen grains from one place to another.

Statement 2 is an absurd statement.

These are some of the **common predators of butterflies: wasps, ants, parasitic flies, birds, snakes, toads, rats etc. The decline in butterfly population would therefore adversely affect the food chain.**

31) What do you understand by an indicator species?

- a) It is a keystone species of an ecosystem without which the local food chain may collapse.
- b) It is a representative species of all species that are threatened or endangered in the ecosystem
- c) It is an endemic species that is at the lowest level of the food chain.
- d) Its status provides information on the overall health of the ecosystem.

Solution: d)

It provides information on the overall condition of the ecosystem and of other species in that ecosystem. It reflects the quality and changes in environmental conditions as well as aspects of community composition. River otters (*Lontra canadensis*) can be an indicator species of clean rivers. Or presence of too much algae can be the indication of toxicity in a marine ecosystem.

32) What is a "Biotope"?

- a) It is a biome that harbours all species of same phenotype.
- b) It is a well-defined geographical area, characterised by specific ecological conditions.
- c) It is an ecosystem that supports the genetic mutation of a contiguous ecosystem.
- d) It is a community of species that reproduces entirely by asexual reproduction.

Solution: b)

Biotope is an area that is uniform in environmental conditions and in its distribution of animal and plant life. It is often used interchangeably with the word habitat.

A biotope is generally not considered to be a large-scale phenomenon. For example, a biotope might be a neighbouring park, a back garden, even potted plants or a fish tank on a porch.

In other words, the biotope is not a macroscopic but a microscopic approach to preserving the ecosystem and biological diversity.

Phenotype is the set of observable characteristics of an individual resulting from the interaction of its genotype with the environment.

33) What do you understand by Ecological footprint?

- a) Non-monetary assessment of ecosystem integrity, health or resilience
- b) A degree of impairment to an ecosystem, which when surpassed is too severe to allow recovery of that ecosystem
- c) An index of the area of a productive ecosystem required to produce the resources used and to assimilate the wastes produced by a defined population

d) The way in which ecological agents reveal their preferences through ecological activity

Solution: c)

As per the Millennium Eco Assessment it is an index of the area of productive land and aquatic ecosystems required to produce the resources used and to assimilate the wastes produced by a defined population at a specified material standard of living, wherever on Earth that land may be located.

Ecological footprint analysis is widely used around the Earth in support of sustainability assessments.

It can be used to measure and manage the use of resources throughout the economy and explore the sustainability of individual lifestyles, goods and services, organizations, industry sectors, neighborhoods, cities, regions and nations.

34) Humus is the dark organic matter that forms in the soil when plant and animal matter decays.

Consider the following statements in this context.

1. Humus contributes to moisture retention in the soil by increasing micro-porosity.
2. Humus contains nitrogen that is essential for plant growth and helps in nutrient retention.

Which of the above statements is/are correct?

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

Solution: c)

Humus should be differentiated from decomposing organic matter. The latter is rough-looking material and remains of the original plant are still visible. Fully humified organic matter, on the other hand, has a uniform dark, spongy, jelly-like appearance, and is amorphous. It may remain like this for millennia or more.

The process of humification can occur naturally in soil, or in the production of compost.

Humus has a characteristic black or dark brown color and is organic due to an accumulation of organic carbon.

The rate at which raw organic matter is converted into humus promotes (when fast) or limits (when slow) the coexistence of plants, animals, and microbes in soil.

Effective humus and stable humus are further sources of nutrients to microbes, the former provides a readily available supply, and the latter acts as a longer-term storage reservoir.

35) In what ways do naturally-occurring wildfires play an integral role in nature?

1. They act as a disinfectant
2. They help return nutrients to the soil
3. They allow sunlight to reach the forest floor, enabling a new generation of seedlings to grow

Select the correct answer code:

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

Solution: d)

“Although often harmful and destructive to humans, **naturally occurring wildfires play an integral role in nature**. They return nutrients to the soil by burning dead or decaying matter. They also act as a disinfectant, removing disease-ridden plants and harmful insects from a forest ecosystem. And by burning through thick canopies and brushy undergrowth, wildfires allow sunlight to reach the forest floor, enabling a new generation of seedlings to grow.”

36) Consider the following statements regarding Phumdis.

1. Phumdis are a series of floating islands, exclusive to the Chilika Lake.

2. During the monsoon season when the water level is high, the phumdis touch the lake bed and during the dry season the phumdis float.
3. Phumdis are used by the local people for constructing their huts for fishing and other livelihood uses.
- Which of the above statements is/are correct?

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

Solution: c)

Phumdis are a series of floating islands, exclusive to the Loktak Lake in Manipur. This mass constitutes the floating park, named Keibul Lamjao National Park.

Phumdis are used by the local people for constructing their huts for fishing and other livelihood uses.

The life-cycle of the phumdis has generally been subject to seasonal variation. **During the monsoon season when the water level is high, the phumdis float, but during the dry season, as the water level falls, the phumdis touch the lake bed and absorb nutrients from it.** When the wet season returns, they again float, and the biomass, which has enough nutrients stored in the plants' roots, survives.

37) Which of the following National parks are part of Nilgiri Biosphere Reserve?

1. Mukurthi National Park
2. Bandipur National Park
3. Silent Valley National Park
4. Eravikulam National Park

Select the correct answer code:

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

Solution: a)



The Nilgiri Biosphere Reserve is an International Biosphere Reserve in the Western Ghats and Nilgiri Hills ranges of South India. The Nilgiri Sub-Cluster is a part of the Western Ghats, which was declared a World Heritage Site by UNESCO in 2012. It includes the Aralam, **Mudumalai, Mukurthi, Nagarhole, Bandipur** and Silent Valley national parks, as well as the Wayanad and Sathyamangalam wildlife sanctuaries.

38) Consider the following statements regarding Shola Forests.

1. They are tropical montane forests found in high altitudes.
2. They have high concentration of lichen, mosses, ferns and orchids.
3. They have spread over the states of Karnataka, Tamil Nadu and Kerala.

Which of the above statements is/are correct?

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

Solution: d)

- The Shola vegetation are **tropical montane forests** found in the Western Ghats separated by rolling grasslands **in high altitudes.**

- These patches of shola forest are found mainly in the valleys and are usually separated from one another by undulating montane grassland.
- Shola forests are found in the higher elevation hill regions of the Nilgiris, Anaimalai, Munnar, Palni hills, Meghamalai, Agasthyamalai to the south and the Malnad and associated ranges in parts of Wayanad, Coorg, Baba Budangiri and Kudremukh up the north, in the states of **Karnataka, Kerala and Tamil Nadu**.
- They have high concentration of **lichen, mosses, ferns and orchids**.

39) Consider the following statements regarding population interactions.

1. In competition, only one species benefits and the other is harmed.
2. The interaction where one species is benefitted and the other is neither benefitted nor harmed is called commensalism.

Which of the above statements is/are correct?

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

Solution: b)

Table 13.1 : Population Interactions

Species A	Species B	Name of Interaction
+	+	Mutualism
-	-	Competition
+	-	Predation
+	-	Parasitism
+	0	Commensalism
-	0	Amensalism

TSIAS
PREPARATION

40) Photoperiodism is a phenomenon related to

- a) Mode of photosynthesis in plants
- b) Flowering in plants
- c) Both a and b
- d) Neither a nor b

Solution: b)

Photoperiodism is the physiological reaction of organisms to the length of day or night. It occurs in plants and animals.

- It has been observed that some plants require a periodic exposure to light to induce flowering. It is also seen that such plants are able to measure the duration of exposure to light.
- For example, some plants require the exposure to light for a period exceeding a well defined critical duration, while others must be exposed to light for a period less than this critical duration before the flowering is initiated in them.
- Together with temperature changes, photoperiod provokes changes in the colour of fur and feathers, migration, entry into hibernation, sexual behaviour etc. For e.g. the singing frequency of birds such as the canary depends on the photoperiod.

41) Consider the following statements regarding Carbonisation.

1. It involves pyrolysis of organic carbon to produce coke.
2. A major advantage of industrial carbonisation is that no carbon monoxide emissions are involved.
3. Wood does not undergo carbonisation.

Which of the above statements is/are correct?

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

Solution: a)

Fossil fuels generally are the products of the carbonisation of vegetable matter. **The term carbonisation is also applied to the pyrolysis of coal to produce coke.** Carbonisation is also a stage in the charcoal making process, and is considered the most important step of all since it has such power to influence the whole process from the growing tree to the final distribution of charcoal to various sources. **The gas produced by carbonisation has a high content of carbon monoxide which is poisonous when breathed.**

42) Consider the following statements.

1. Carbon sinks are natural systems that suck up and store carbon dioxide from the atmosphere.
2. A forest is considered a carbon sink if it absorbs more carbon than it releases.
3. Continental forests store at least ten times more carbon than Mangroves, seagrass beds and salt marshes.

Which of the above statements is/are correct?

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

Solution: c)

INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

Carbon sinks are natural systems that suck up and store carbon dioxide from the atmosphere. The Earth's land and oceans absorb about half of all carbon dioxide emissions from human activities.

Mangroves, seagrass beds and salt marshes store at least ten times more carbon than continental forests.

Sedimentary rocks in the Earth's crust contain loads of carbon compounds, including the hydrocarbons we use as fossil fuels that leads to excess carbon dioxide in our atmosphere.

A forest is considered a carbon sink if it absorbs more carbon than it releases.

43) The warming up of oceans would affect fishes in which of the following ways?

1. It causes stress and decrease the range for fishes.
2. Increase diseases and even wipe out many commonly eaten fish.
3. The aerobic capacity of fish increases in warming waters.

Select the correct answer code:

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

Solution: b)

Warming oceans can **cause stress, decrease the range, increase diseases and even wipe out many commonly eaten fish.**

As temperature increases, the demand for oxygen of many fish species will exceed their capacity to extract oxygen from the environment through their gills. As a result, the aerobic capacity of fish decreases in warming waters, and this reduction may be more important in larger fishes.

- 44) Which of the following correctly assesses the impact of climate change on agriculture and food security?
1. Crop yield may be reduced in most tropical and sub-tropical regions due to decreased water availability.
 2. Insect or pest incidence may increase leading to greater crop losses.

Select the correct answer code:

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

Solution: c)

According to IPCC report, climate change would hit the poorest countries severely in terms of reducing the agricultural products.

- **Crop yield would be reduced due to decreased water availability**, and new or changed insect/pest incidence. This is because **higher temperature is conducive for the growth of pests**.
- Agriculture will be adversely affected not only by an increase or decrease in the overall amounts of rainfall but also by shifts in the timing of the rainfall.

- 45) The chemical oxygen demand (COD) test is commonly used to measure which of the following?

- a) Computing oxygen levels in forest ecosystems
- b) Amount of oxygen used in an oxygenation process
- c) Oxygen required to decompose organic constituents present in the wastewater
- d) None of the above

Solution: c)

The amount of oxygen that is required for the chemical oxidation of the organic and inorganic chemicals present in the wastewater by utilising oxidising agents like Potassium permanganate, Potassium dichromate etc. is called as chemical oxygen demand (COD). COD is the oxygen demand that is consumed by both inorganic and organic matter present in the wastewater sample.

- 46) Consider the following statements.

1. Soil Organic Matter (SOM) is mainly composed of carbon, hydrogen and oxygen but also have small amounts of nutrients such as nitrogen and phosphorous.
2. Storing the carbon contained in organic matter within the soil, is seen as one way to mitigate climate change.
3. Soil Organic Carbon (SOC) cannot be emitted back in gaseous form or lost into the atmosphere.

Which of the above statements is/are correct?

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

Solution: a)

Soil Organic Matter (SOM) is mainly composed of carbon, hydrogen and oxygen but also has small amounts of nutrients such as nitrogen, phosphorous, sulphur, potassium, calcium and magnesium contained within organic residues.

After carbon enters the soil in the form of organic material from soil fauna and flora, it can persist in the soil for decades, centuries or even millennia. Eventually, **SOC can be lost as CO₂ or CH₄ emitted back into the atmosphere**, eroded soil material, or dissolved organic carbon washed into rivers and oceans.

47) Which of these ecosystems would sequester most carbon for a given unit of area?

- a) Mature tropical forests
- b) Bare soil
- c) Grassland
- d) Saltmarsh

Solution: d)

Saltmarshes are one of the key coastal 'blue carbon' habitats, recognised for their ability to store carbon within above- and below-ground biomass and sediments.

Saltmarshes sequester carbon at a rate two to four times greater than that recorded for mature tropical forests.

48) CO₂ injection technology is used to

1. Enhance oil recovery from ageing oil fields
2. Sequester atmospheric carbon for ocean basin storage
3. Reduce the carbon content of vehicular emissions

Which of the above statement(s) is/are correct?

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

Solution: a)

Under it, CO₂ gas is injected with residual oil in the ageing field in which total oil production has been declining. It reduces its viscosity and makes it easier to displace oil from the rock pores. CO₂ gas also swells oil, thereby pushing it towards the producing well for extraction.

CO₂- Enhanced Oil Recovery (EOR) works most commonly by injecting CO₂ into already developed oil fields where it mixes with and 'releases' the oil from the formation, thereby freeing it to move to production wells. CO₂ that emerges with the oil is separated in above-ground facilities and re-injected into the formation.

49) Ocean acts as a large carbon sink on earth due to

- a) Difference in the partial pressure of carbon dioxide between seawater and air
- b) Its large geographical coverage
- c) Rich population of phytoplankton and seagrass
- d) All of the above

Solution: d)

Oceans are one of the largest carbon sinks on earth because of their large geographical coverage and presence of rich population of phytoplankton and seagrass, which act as carbon sink.

Carbon dioxide readily dissolves in water and the oceans provide a huge reservoir of carbon. Across the world's oceans there is a continual cycle of equilibration of dissolved carbon dioxide in water with carbon dioxide in the atmosphere.

The difference in partial pressure of the CO₂ between seawater and air facilitate gaseous exchange. This allows atmospheric CO₂ to dissolve in seawater.

The carbon dioxide which dissolves in our oceans occurs in three main forms. Aside from the normal carbon dioxide form, it is also found as bicarbonate and carbonate ions.

50) Consider the following statements regarding Photochemical smog.

1. Photochemical smog is a term used to describe air pollution that is a result of the interaction of sunlight with certain chemicals in the atmosphere.
2. One of the primary components of photochemical smog is stratospheric ozone.

Which of the above statements is/are incorrect?

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

Solution: b)

The Formation of Smog

- **Photochemical smog** (smog) is a term used to describe **air pollution that is a result of the interaction of sunlight with certain chemicals in the atmosphere.**
- One of the primary components of photochemical smog is ozone.
- While **ozone in the stratosphere** protects earth from harmful UV radiation, ozone on the ground is hazardous to human health.
- **Ground-level ozone** is formed when **vehicle emissions containing nitrogen oxides** (primarily from vehicle exhaust) **and volatile organic compounds** (from paints, solvents, printing inks, petroleum products, vehicles, etc.) interact in the **presence of sunlight.**

51) Under the Wild Life (Protection) Act, 1972, Wildlife Crime Control Bureau (WCCB) is mandated to

1. Assists and advises the Customs authorities in inspection of the consignments of flora & fauna.
2. Establish a centralized wildlife crime data bank.
3. Collect and collate intelligence related to organized wildlife crime activities and to disseminate the same to State and other enforcement agencies.
4. Assist international organizations concerned for universal action for wildlife crime control.

Select the correct answer code:

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

Solution: d)

Wildlife Crime Control Bureau is a statutory multi-disciplinary body established by the Government of India under the Ministry of Environment and Forests, to combat organized wildlife crime in the country.

Under Section 38 (Z) of the Wild Life (Protection) Act, 1972,

- it is mandated to **collect and collate intelligence related to organized wildlife crime activities** and to disseminate the same to State and other enforcement agencies for immediate action so as to apprehend the criminals;
- to **establish a centralized wildlife crime data bank;**
- co-ordinate actions by various agencies in connection with the enforcement of the provisions of the Act;
- **assist foreign authorities and international organization concerned to facilitate co-ordination and universal action for wildlife crime control;**
- capacity building of the wildlife crime enforcement agencies for scientific and professional investigation into wildlife crimes and assist State Governments to ensure success in prosecutions related to wildlife crimes;
- and advise the Government of India on issues relating to wildlife crimes having national and international ramifications, relevant policy and laws.

- It also assists and **advises the Customs authorities in inspection of the consignments of flora & fauna** as per the provisions of Wild Life Protection Act, CITES and EXIM Policy governing such an item.

52) Consider the following statements regarding Operation Olivia.

- Operation Olivia is undertaken by the Ministry of environment forest and climate change.
- It helps protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: b)

The Indian Coast Guard’s “Operation Olivia”, initiated in the early 1980s, helps protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.

53) Consider the following statements regarding Wetlands.

- In India, Wetlands are regulated under the *Environment (Protection) Rules, 1986*.
- Wetlands International is sub-branch of UN Environment, that works to sustain and restore wetlands and their resources for people and biodiversity.

Which of the above statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Solution: d)



Wetlands are regulated under the Wetlands (Conservation and Management) Rules.

Wetlands International is a global organisation that works to sustain and restore wetlands and their resources for people and biodiversity. It is an independent, not-for-profit, global organisation, supported by government and NGO membership from around the world.

54) Consider the following statements regarding Jim Corbett National Park.

- Jim Corbett National Park was the first to come under the Project Tiger initiative.
- Jim Corbett National Park is a national park and tiger reserve that completely encompasses the Shivaliks, near the foothills of the Himalayas.
- Jim Corbett Tiger Reserve (CTR) has the highest tiger density in the wild in India.

Which of the above statements is/are correct?

- 1, 2
- 1, 3
- 2, 3
- 1, 2, 3

Solution: b)

Jim Corbett National Park is a national park in India located in the Nainital district of Uttarakhand state. The first national park in India, it was established in 1936 during the British Raj. **The park was the first to come under the Project Tiger initiative.**

Corbett Tiger Reserve (CTR) has reported the highest tiger density among India’s tiger reserves.

Rajaji National Park is an Indian national park and tiger reserve that **encompasses the Shivaliks**, near the foothills of the Himalayas.

55) Consider the following statements regarding Great Indian Bustards (GIBs).

1. GIBs are the largest among the bustard species found in India.
2. GIBs are considered the flagship bird species of grassland and hence barometers of the health of grassland ecosystems.
3. In India, majority of the GIBs are found in Gujarat.

Which of the above statements is/are correct?

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

Solution: c)

GIBs are the largest among the four bustard species found in India, the other three being MacQueen's bustard, lesser florican and the Bengal florican. GIBs' historic range included much of the Indian sub-continent but it has now shrunk to just 10 per cent of it. Among the heaviest birds with flight, **GIBs prefer grasslands as their habitats**. Being terrestrial birds, they spend most of their time on the ground with occasional flights to go from one part of their habitat to the other. They feed on insects, lizards, grass seeds etc. **GIBs are considered the flagship bird species of grassland and hence barometers of the health of grassland ecosystems**.

In India, majority of the GIBs are found in **Rajasthan**.

56) Which of the following national and international events monitors Ozone pollution?

1. Gothenburg Protocol
2. *Bonn Convention*
3. National Air Quality index
4. System of Air Quality and Weather Forecasting

Select the correct answer code:

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

Solution: b)

The **1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone** is a multi-pollutant protocol designed to reduce acidification, eutrophication and ground-level ozone. The Protocol is part of the Convention on Long-Range Transboundary Air Pollution.

The **Convention on Migratory Species (CMS)**, also known as the Bonn Convention, aims to conserve terrestrial, aquatic and avian migratory species throughout their range.

Ozone has been classified and monitored as one of the eight pollutants under National Air Quality index.

Ozone is monitored as one of the Pollutants under SAFAR (System of Air Quality and Weather Forecasting).

57) Consider the following Environmental conventions.

1. Basel Convention : Persistent Organic Pollutants.
2. Rotterdam Convention : Prior Informed Consent Procedure for certain hazardous Chemicals and Pesticides in international trade.
3. Stockholm Convention : Control of Transboundary Movements of Hazardous Wastes and their Disposal.

Which of the above pairs is/are correctly matched?

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

Solution: a)

The Basel, Rotterdam and Stockholm (BRS) Conventions are **multilateral environmental agreements**, which share the common objective of **protecting human health and the environment from hazardous chemicals and wastes**.

(B) Basel Convention:

• The **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal** was created to protect people and the environment from the negative effects of the inappropriate management of hazardous wastes worldwide. It is the most comprehensive global treaty dealing with hazardous waste materials throughout their lifecycles, from production and transport to final use and disposal.

(R) Rotterdam Convention:

• The **Rotterdam Convention on the Prior Informed Consent Procedure for certain hazardous Chemicals and Pesticides in international trade** provides Parties with a first line of defence against hazardous chemicals. It promotes international efforts to protect human health and the environment as well as enabling countries to decide if they want to import hazardous chemicals and pesticides listed in the Convention.

(S) Stockholm Convention:

• The **Stockholm Convention on Persistent Organic Pollutants** is a global treaty to protect human health and the environment from highly dangerous, long-lasting chemicals by restricting and ultimately eliminating their production, use, trade, release and storage.

58) Consider the following statements regarding **Conference of the parties (COP) to United Nations Framework Convention on Climate Change (UNFCCC)**.

1. The COP is the supreme decision-making body of the UNFCCC.
2. Not all States that are Parties to the UNFCCC are represented at the COP.
3. COP assesses the effects of the measures taken by the members and the progress made in achieving the ultimate objective of the Convention.

Which of the above statements is/are correct?

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

Solution: b)

The COP is the supreme decision-making body of the Convention. **All States that are Parties to the Convention are represented at the COP**, at which they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.

A key task for the COP is to review the national communications and emission inventories submitted by Parties. Based on this information, the COP assesses the effects of the measures taken by Parties and the progress made in achieving the ultimate objective of the Convention.

The COP meets every year, unless the Parties decide otherwise. The first COP meeting was held in Berlin, Germany in March, 1995.

59) Consider the following statements regarding *UNFCCC*.

1. The UNFCCC was adopted in 1992 at the Rio Earth Summit.
2. The UNFCCC established a framework for action to stabilise concentrations of *greenhouse gases in the earth's atmosphere*.
3. The framework sets binding limits on greenhouse gas emissions for individual countries, but contains no enforcement mechanisms.

Which of the above statements is/are correct?

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

Solution: d)

The UNFCCC was adopted in 1992 at the Rio Earth Summit, which marked the beginning of the international community's first concerted effort to confront the problem of climate change.

Known also as the Rio Convention, the **UNFCCC established a framework for action to stabilise concentrations of greenhouse gases in the earth's atmosphere**.

The UNFCCC entered into force in 1994, and **nearly all of the world's nations—a total of 197 (as of 2020)—have ratified**.

The **framework sets non-binding limits** on greenhouse gas emissions for individual countries and contains no enforcement mechanisms.

60) Consider the following statements regarding Green Climate Fund (GCF).

1. The Green Climate Fund (GCF) is a fund established within the framework of the UNFCCC.
2. The Fund's investments can be in the form of grants only.
3. GCF has established a direct access modality so that national and sub-national organisations can receive funding directly, rather than only via international intermediaries.

Which of the above statements is/are correct?

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

Solution: c)

The Green Climate Fund (GCF) is a global fund created to support the efforts of developing countries to respond to the challenge of climate change. GCF helps developing countries limit or reduce their greenhouse gas (GHG) **emissions and adapt to climate change. It seeks to promote a paradigm shift to low-emission and climate-resilient development**, taking into account the needs of nations that are particularly vulnerable to climate change impacts.

It was set up by the countries who are parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 2010, as part of the Convention's financial mechanism.

GCF's activities are aligned with the priorities of developing countries through the principle of country ownership, and the Fund has established a direct access modality so that national and sub-national organisations can receive funding directly, rather than only via international intermediaries.

The Fund's investments can be in the **form of grants, loans, equity or guarantees**.