

V.KUMAR'S ACADEMY

10072026

GENERAL ABILITY AND INTELLIGENCE

TEST No.15 for CAPF (AC)

Time: Two Hours

Marks: 250



Name Of Candidate:.....

Invigilator's Signature:.....

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Test No.15 (Science and Environment)

This document is the compilation of **125** questions that are part of **V.KUMAR'S CAPF** famous REVISION initiative for **UPSC CAPF(ASSISTANT COMMANDANT) examination – 2026** (which has become most anticipated annual affair by numbers of CAPF(AC) aspirants across the country). These questions are carefully framed so as to give aspirants tough challenge to test their knowledge and at the same time improve skills such as intelligent guessing, elimination, reasoning, deduction etc – which are much needed to sail through tough CAPF(AC) Examination conducted by UPSC.

These questions are based on this Revision Timetable which is conducted by V.KUMAR Sir and his team. Every year thousands of candidates follow our revision timetable – which is made for SERIOUS aspirants who would like to intensively revise everything that's important before the exam.

Those who would like to take up more tests for even better preparation, can enroll to **V.KUMAR'S CAPF Mock Test Series – 2026**. Every year toppers solve our tests and sail through UPSC CAPF (AC) exam. Wish you all the best!

V.KUMAR
(JRF)
(Exam Comptroller)



Q.1 In the context of electric vehicle batteries, consider the following elements:

- | | |
|--------------|--------------|
| I. Cobalt | II. Graphite |
| III. Lithium | IV. Nickel |

How many of the above usually make up battery cathodes?

- | | |
|----------------|------------------|
| (a) Only one | (b) Only two |
| (c) Only three | (d) All the four |

Q.2 Consider the following plants

- | | |
|--------------|---------------|
| 1. Groundnut | 2. Horse-gram |
| 3. Soybean | |

How many of the above belong to the pea family?

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

Q.3 The Ottawa Convention primarily aims to:

- (a) Ban the use of nuclear weapons under all circumstances
- (b) Eliminate anti-personnel landmines globally
- (c) Prohibit the use of biological weapons in warfare
- (d) Establish exclusive economic zones in conflict zones

Q.4 Consider the following statements about National Aerospace Laboratories (NAL):

- 1.It is a subordinate body of Hindustan Aeronautics Limited (HAL).
- 2.Its main focus is on military aviation strategy and combat drone design.
- 3.It operates under the Ministry of Science and Technology, Government of India.

How many of the above statements is/are correct?

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

Q.5 Ratio of A's age 1 year later and B's age 5 years ago is 1:1 and average of their ages 6 years later will be 33 years then find ratio of present age of B to A?

- | | |
|---------|---------|
| (a) 8:7 | (b) 4:3 |
| (c) 3:2 | (d) 5:4 |

Q.6 Which one of the following is synthesised in human body that dilate blood vessels and increases blood flow?

- (a) Nitric oxide
- (b) Nitrous oxide
- (c) Nitrogen dioxide
- (d) Nitrogen Pentoxide

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Q.7 Consider the following diseases:

1. Ebola
2. Influenza
3. Dengue
4. Yellow fever

How many of the above are classified as Notifiable diseases in India?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q. 8 "Membrane Bioreactors" are often discussed in the context of:

- (a) Assisted reproductive technologies
(b) Drug delivery nanotechnologies
(c) Vaccine production technologies
(d) Wastewater treatment technologies

Q. 9 Consider the following statements:

Statement – I:

Neuromorphic computing relies on Spiking neurons to store and process data similar to biological neurons.

Statement – II:

Neuromorphic computing is modelled on the human brain and nervous system.

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

- (a) Both Statement -I and Statement -II are correct and Statement -II explains Statement -I
(b) Both Statement -I and Statement -II are correct but Statement -II does not explain Statement -I

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

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

Q.10 Wolbachia method' is sometimes talked about with reference to which one of the following?

(a) Controlling the viral diseases spread by mosquitoes

(b) Converting crop residues into packing material

(c) Producing biodegradable plastics

(d) Producing biochar from thermo-chemical conversion of biomass

Q.11 Consider the following:

1. Carbon monoxide
2. Nitrogen oxide
3. Ozone
4. Sulphur dioxide

Excess of which of the above in the environment is/are cause(s) of acid rain?

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

Q.12 The phenomenon occasionally referred to as "Purple Rain," reported in certain localized areas, is most plausibly explained by:

- (a) The scattering of sunlight by unusually high concentrations of atmospheric ice crystals, similar to halo phenomena.
- (b) Biological material, such as pollen or algae spores from specific blooms, being carried aloft and mixing with rainwater.
- (c) The presence of dissolved manganese compounds, often originating from industrial emissions or specific geological dust, oxidizing and colouring the precipitation.
- (d) A rare photochemical reaction involving ozone and nitrogen oxides under specific meteorological conditions, tinting the raindrops.

Q13. An X-ray can be deflected :

- (a) by a magnetic field.
- (b) by an electric field.
- (c) by both electric and magnetic field.
- (d) neither by electric field nor by magnetic field.

Q14. Which one of the following gas is used in making soft drinks?

- (a) NH_3
- (b) PH_3
- (c) COCl_2
- (d) CO_2

Q.15 Number of electrons present in the species H_2^+ , He, H_2 and O_2^+ respectively are:

- (a) 1, 2, 2, 15
- (b) 1, 2, 1, 14
- (c) 2, 2, 2, 16
- (d) 0, 2, 1, 14

Q.16 Consider the following:

Assertion (A): Hypersonic missiles pose a significant challenge to traditional missile defence systems.

Reason (R): These missiles can travel at speeds exceeding Mach 5 and possess high manoeuvrability during flight.

In the context of the above statements, which of the following is correct?

- (a) Both A and R are true, and R is the correct explanation of A.
- (b) Both A and R are true, but R is not the correct explanation of A.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

Q.17 Sponges belong to which one among the following phylum?

- (a) Porifera
- (b) Platyhelminthes
- (c) Cnidaria
- (d) Annelida

Q.18 Which of the following gene editing tools utilizes a Cas protein guided by an RNA molecule to induce precise changes in the DNA sequence?

- (a) Zinc Finger Nucleases (ZFNs)
- (b) Transcription Activator-Like Effector Nucleases (TALENs)
- (c) CRISPR-Cas9
- (d) Meganucleases

Q.19 India's Defence Research and Development Organisation (DRDO) recently unveiled advancements in hypersonic technology related to the Long Range – Anti Ship Missile (LR-ASHM) program. What is the defining characteristic of a hypersonic missile?

- (a) Its ability to travel at speeds exceeding the speed of sound.
- (b) Its capability to carry multiple independently targetable warheads.
- (c) Its ability to travel at speeds greater than Mach 5.
- (d) Its use of cryogenic propulsion systems for extended range.

Q.20 Which of the following technologies is being actively explored by DRDO for intercepting incoming hypersonic threats?

- (a) Railguns
- (b) Directed Energy Weapons (DEWs)
- (c) Electromagnetic Pulse (EMP) Weapons
- (d) Kinetic Energy Penetrators

Q.21 The surface of the concrete structure of a new construction is covered with straw/gunny bags by wetting. This is done to :

- (a) prevent fast evaporation, until hydration has proceeded well
- (b) protect the concrete structure from contamination by dust particles
- (c) prevent development of any fungus on the surface
- (d) give smoother and cleaner surface over cement structure

Q.22 Microbodies found to be present in plant and animal cells contain

- (a) broken down membranes
- (b) enzymes
- (c) acidic fluids
- (d) waste metabolites

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Q.23 Consider the following pairs regarding bilateral exercises of India:

Bilateral Exercise : Participating country

1. Garuda Shakti : Nepal

2. Varuna : France

3. Desert Cyclone : Mongolia

4. Tiger Triumph : Indonesia

How many of the pairs given above are correct?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.24 There are eight friends P, Q, R, S, T, U, V and W who invested in some business in the ratio 1:2:3:4:5:6:7:8 and the duration for which they invested the money is in the ratio 8:7:6:5:4:3:2:1 respectively. Who will get the maximum profit at the end of the year?

- (a) S only (b) T only
(c) Both S and T (d) Neither S nor T

Q.25 Consider the following pairs:

(Vitamins/Minerals) (Deficiency Diseases)

1. Cyanocobalamin Anaemia
2. Calciferol Beri-beri
3. Retinol Night blindness

4. Copper Bad teeth

How many of the above pairs are correctly matched?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.26 Consider the followings:

1. In forensic wildlife
2. For criminal identification
3. To identify mutilated remains
4. To resolve disputes of maternity/paternity
5. In cases of exchange of babies in hospital ward

How many of above are the uses of DNA Fingerprinting?

- (a) Only two (b) Only three
(c) Only four (d) All five

Q.27 Which of the followings is the best suitable definition of Bose-Einstein condensate state of matter?

- (a) It's created when a neutral gas is heated and some of the electrons are freed from the atoms or molecules.
(b) It occurs when particles are cooled to near absolute zero.
(c) It is a semi rigid structure suspended in a liquid, which we call a "Colloid".
(d) None of these

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Q.28 The correct order of atomic radius of Li, Na, Be and O is

- (a) $\text{Na} > \text{Li} > \text{Be} > \text{O}$
- (b) $\text{Na} > \text{Be} > \text{Li} > \text{O}$
- (c) $\text{Be} > \text{Li} > \text{Na} > \text{O}$
- (d) $\text{O} > \text{Be} > \text{Li} > \text{Na}$

Q.29 Which of the following best describes a particular Malware as 'a software designed to secretly gather information about a user and transmit it to a third party without user consent, leading to privacy violations?'

- (a) Ransomware
- (b) Trojan
- (c) Spyware
- (d) Cryptojacking

Q.30 Which of the following best describes the term Thermobaric weapon?

- (a) A bomb that decreases temperature to cryogenic levels and increases pressure over a targeted area
- (b) A weapon that on bursting, releases carcinogenic Persistent Organic pollutants on a huge scale over a small area
- (c) A weapon that uses nuclear fission reaction to cause the damage
- (d) A weapon that uses atmospheric oxygen to fuel an explosion

Q.31 The "Triple Elimination Initiative" recently seen in the news primarily aims to eliminate mother-to-child transmission of which of the following diseases?

- (a) HIV, Tuberculosis, and Malaria
- (b) HIV, Syphilis, and Hepatitis B
- (c) Syphilis, Hepatitis C, and Rubella
- (d) Hepatitis B, Rubella, and Polio

Q.32 Consider the following statements on 'Fog':

1. Fog is simply a cloud that forms close to the ground.
2. Radiation fog is associated with radiation cooling of the land at night.
3. Advection fog forms when moisture is blown over a cold surface and is chilled by contact.

Which of the statements given above are correct?

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

Q.33 Find the highest four-digit number that is divisible by each of the numbers 24, 36, 45 and 60?

- (a) 9990
- (b) 9360
- (c) 9420
- (d) 9720

Q.34 Three bells toll at intervals of 36 sec, 40 sec, and 48 sec respectively. They start singing together at a particular time.

When will they toll next together?

- (a) 6 minutes (b) 12 minutes
(c) 18 minutes (d) 24 minutes

Q.35 The Global Alliance against Hunger and Poverty has been launched by:

- (a) G20 (b) FAO
(c) Quad (d) UNICEF

Q.36 In plant cells

- (a) Nucleus does not need a membrane but chloroplasts are surrounded by their own membrane.
(b) Nucleus and chloroplasts are surrounded separately by their own membrane.
(c) Nucleus is surrounded by membrane but chloroplasts do not need membrane.
(d) Both nucleus and chloroplasts are not surrounded by any membrane.

Q.37 What is the minimum number of square marbles required to tile a floor of length 2 meters 8cm and width 2 meters 86 cm?

- (a) 100 (b) 88 (c) 76 (d) 98

Q.38 Which of the following is the most significant factor behind the focus on thorium utilization in India's atomic energy policy?

- (a) International restrictions on uranium imports.
(b) Thorium's high efficiency in nuclear fission.
(c) India's limited uranium reserves.
(d) Thorium's role in nuclear weapons development.

Q.39 What is the primary challenge in integrating Homeopathy and Allopathy into a unified healthcare approach?

- (a) Lack of scientific validation for allopathic treatments
(b) Homeopathy's inability to address chronic conditions
(c) Incompatibility of medication dosages
(d) Philosophical differences in treatment principles

Q.40 The elements of which of the following pairs are isobars?

- (a) ${}^1\text{H}$ and ${}^{13}\text{H}$
(b) ${}^1\text{H}$ and ${}^{12}\text{H}$
(c) ${}^{12}\text{C}$ and ${}^{14}\text{C}$
(d) ${}^{40}_{18}\text{Ar}$ and ${}^{40}_{20}\text{Ca}$

Q.41 Which of the following best explains why underwater cables are typically buried near coastlines but laid directly on the ocean floor in deeper regions?

- (a) Buried cables in deep seas avoid detection by submarines.
- (b) Burial ensures signal amplification in deep-sea sections.
- (c) Coastal areas have higher risk from human activity and anchoring.
- (d) Burial near coasts increases signal speed and bandwidth.

Q.42 Yatish and Gururaj are playing chess together. Yatish knows the two rows in which he has to put all the pieces in but he doesn't know how to place them. What is the probability that he puts all the pieces in the right place?

- (a) $8! / 16!$
- (b) $8! / (2 \times 15!)$
- (c) $8! / 15!$
- (d) $(2 \times 8!) / 16!$

Q.43 How many 3 – letter words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', if repetition of letters is not allowed?

- (a) 720
- (b) 420
- (c) 5040
- (d) 120

Q.44 Regarding Fast Breeder Reactors (FBRs), which statement is accurate?

- (a) FBRs use only uranium-235 as fuel.
- (b) The primary purpose of FBRs is to generate electricity through the controlled fission of uranium-238.

(c) FBRs have the potential to produce more fissile material than they consume.

(d) FBRs are known for their slow reaction rates and are used primarily for experimental purposes.

Q.45 Which of the following materials is often used as a coolant in Fast Breeder Reactors (FBRs)?

- (a) Water
- (b) Graphite
- (c) Liquid Sodium
- (d) Heavy Water

Q.46 What statements accurately describe the difference between Broadband and Broadcast?

- (a) Broadband and Broadcast both refer to the same technology for transmitting data.
- (b) Broadband is a method of data transmission that allows multiple signals to share the same communication channel, while Broadcast is the wide distribution of content to a large audience.
- (c) Broadcast is primarily used for point-to-point communication, while Broadband is suitable for one-to-many communication.
- (d) Broadband is characterized by a single, dedicated transmission path, while Broadcast involves the simultaneous transmission of data to multiple recipients.

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Q.47 Regarding plant cells, which statement is accurate?

- (a) Plant cells lack a cell wall, making them structurally similar to animal cells.
- (b) Plant cells have a large central vacuole involved in nutrient storage and waste management.
- (c) Plant cells contain centrioles, crucial for cell division.
- (d) Plant cells obtain energy primarily through lysosomes.

Q.48 Concerning photosynthesis, which statement is accurate?

- (a) Photosynthesis occurs in the mitochondria of plant cells.
- (b) The primary purpose of photosynthesis is to release oxygen into the atmosphere.
- (c) Carbon dioxide is the only gas involved in the process of photosynthesis.
- (d) Photosynthesis involves the conversion of light energy into chemical energy.

Q.49 What is the primary source of energy that drives the conversion of carbon dioxide and water into glucose during photosynthesis?

- (a) Heat
- (b) Solar energy
- (c) Chemical reactions
- (d) Oxygen

Q.50 What is the purpose of the ALICE experiment at the Large Hadron Collider (LHC)?

- (a) Study the behavior of cosmic rays
- (b) Investigate the properties of dark Matter
- (c) Examine the quark-gluon plasma state
- (d) Search for magnetic monopoles

Q.51 Recently, the medication "Hydroxychloroquine" made headlines. It's used to treat

- (a) Hepatitis B
- (b) Malaria
- (c) Kyasanur Forest disease
- (d) Tuberculosis

Q.52 Which statement accurately describes the Mpemba Effect?

- (a) It is the tendency of hot water to freeze faster than cold water.
- (b) The Mpemba Effect occurs due to differences in water density at different temperatures.
- (c) Named after a Tanzanian student, it refers to the observation that certain substances evaporate faster when heated.
- (d) This phenomenon is exclusively observed in liquids with high thermal conductivity.

Q.53 Which technology is commonly used for the navigation of drones?

- (a) RADAR (Radio Detection and Ranging)
- (b) GPS (Global Positioning System)
- (c) SONAR (Sound Navigation and Ranging)
- (d) RFID (Radio-Frequency Identification)

Q.54 Which of the following statements about atomic clocks is correct?

- (a) Atomic clocks measure time using the vibrations of a quartz crystal
- (b) Atomic clocks are based on the motion of celestial bodies.
- (c) The accuracy of atomic clocks is primarily influenced by the Earth's magnetic field.
- (d) Atomic clocks rely on the vibrations of atoms to measure time.

Q.55 Regarding nuclear fusion, which statement is accurate?

- (a) Nuclear fusion is the process of splitting atoms to release energy.
- (b) The primary fuel for nuclear fusion is uranium-235.
- (c) Nuclear fusion is the process that powers the sun.
- (d) Controlled nuclear fusion has been successfully achieved in commercial power plants.

Q.56 Consider the following pathogens:

- 1. Bacteria
- 2. Viruses
- 3. Fungi
- 4. Parasites

How many of the above pathogens can cause Neglected Tropical Diseases?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Q.57 Regarding e-cigarettes, which statement is accurate?

- (a) E-cigarettes are completely risk-free and have no health implications.
- (b) The primary component of e-cigarette vapor is water vapor.
- (c) E-cigarettes deliver nicotine through an aerosol, not traditional smoke
- (d) E-cigarettes have been conclusively proven to be an effective tool for smoking cessation.

Q.58 Which of the following statements about ammonia is accurate?

- (a) Ammonia has a linear molecular geometry.
- (b) Ammonia is a greenhouse gas that contributes to global warming.
- (c) Ammonia is commonly used as a refrigerant.
- (d) Ammonia is an alkaline gas with a pH less than 7.

Q.59 What can be said about the planet Venus?

- (a) Venus is the closest planet to the Sun in our solar system.
- (b) Venus is known for its extremely cold and icy surface.
- (c) Venus has a rotation that is opposite to the majority of other planets
- (d) Venus has a thick atmosphere primarily composed of oxygen.

Q.60 What is "White Hydrogen"?

- (a) Hydrogen gas that is produced from the electrolysis of water.
- (b) A form of hydrogen gas that is used as rocket fuel.
- (c) Hydrogen gas obtained from the steam methane reforming process
- (d) Hydrogen gas produced using renewable energy sources, such as wind or solar power.

Q.61 Which of the following statements about Tuberculosis (TB) is accurate?

- (a) Tuberculosis is caused by a virus.
- (b) TB primarily affects the skin and external tissues.
- (c) The BCG vaccine is highly effective in preventing TB
- (d) Drug-resistant strains of TB can develop due to incomplete or incorrect treatment

Q.62 Which substance is commonly used in cloud seeding to promote the formation of ice crystals in clouds?

- (a) Sodium chloride
- (b) Silver iodide
- (c) Carbon dioxide
- (d) Oxygen

Q.63 Which meteorological conditions are often targeted for cloud seeding activities?

- (a) Clear skies and high temperatures
- (b) Low humidity and strong winds
- (c) Cumulus clouds and low temperatures
- (d) Stratocumulus clouds and moderate Humidity

Q.64 What is the role of gravitational force?

- (a) Gravitational force is responsible for the acceleration of charged particles in electrical circuits.
- (b) Gravitational force is a short-range force that holds atomic nuclei together.
- (c) Gravitational force is the force of attraction between two masses and is responsible for phenomena like the Earth's orbit around the Sun.
- (d) Gravitational force only acts between celestial bodies and has no influence on objects at the Earth's surface.

Q.65 What is the role of the Strong Nuclear Force in atomic nuclei?

- (a) The Strong Nuclear Force repels protons within the nucleus.
- (b) It is responsible for the radioactive decay of unstable isotopes.
- (c) The Strong Nuclear Force binds protons and neutrons together in the nucleus.
- (d) It controls the electromagnetic interactions between electrons.

Q.66 Which of the following statements accurately describes electromagnetic waves?

- (a) Electromagnetic waves require a medium, such as air or water, for propagation.
- (b) Electromagnetic waves consist of only electrical energy.
- (c) Electromagnetic waves can travel through a vacuum.
- (d) Electromagnetic waves are solely longitudinal in nature.

Q.67 How do electric batteries work?

- (a) Batteries store and release electrical energy through magnetic fields.
- (b) Batteries convert light energy into electrical energy.
- (c) Batteries produce electricity by harnessing gravitational forces.
- (d) Batteries generate electricity through chemical reactions.

Q.68 What are fractals?

(a) Geometric shapes with smooth and regular patterns.

(b) Complex structures characterized by self-similarity at different scales.

(c) Simple, easily defined shapes found in classical geometry.

(d) Two-dimensional representations of mathematical equations.

Q.69 Which of the following statements correctly describes the 'isotope'?

(a) An isotope is a type of molecule formed by the combination of two or more elements.

(b) Isotopes are atoms of the same element with the same number of protons but different numbers of neutrons.

(c) Isotopes are particles found in the nucleus of an atom that determine its chemical properties.

(d) Isotopes are unstable atoms that undergo radioactive decay.

Q.70 Consider the following statements about X-rays:

1. X-rays have shorter wavelengths than ultraviolet (UV) rays.
2. X-rays can be used for medical imaging to visualize bones and tissues.
3. X-rays travel at the same speed as visible light.

How many of the above statements are correct?

(a) Only one

(b) Only two

(c) All three

(d) None

Q.71 What is true about the 'near-space' area?

(a) Near-space is a region in Earth's atmosphere that is between airspace Flight Level 18 km and 160 km above sea level.

(b) Near-space is characterized by a lack of gravity, allowing objects to float freely.

(c) Satellites in near-space experience less atmospheric drag compared to those in low Earth orbit.

(d) Near-space is beyond the reach of Earth's atmosphere, making it an ideal location for human habitation.

Q.72 Which of the following statements about Amyloidosis is correct?

(a) Amyloidosis is a type of cancer that primarily affects the brain.

(b) Amyloidosis is characterized by the accumulation of abnormal proteins called amyloids in tissues and organs.

(c) Amyloidosis is caused by a viral infection.

(d) Amyloidosis is a genetic disorder that cannot be influenced by lifestyle factors.

Q.73 What statements about lysozyme are correct?

(a) Lysozyme is an enzyme found in the stomach.

(b) It functions by breaking down lipids in the digestive system.

(c) Lysozyme is known for its antimicrobial properties.

(d) It is primarily involved in blood clotting.

Q.74 Hard corals differ from soft corals in which of the following ways?

(a) Hard corals lack zooxanthellae, while soft corals rely on them.

(b) Hard corals are solitary organisms, while soft corals form colonies.

(c) Hard corals have limestone skeletons, while soft corals do not.

(d) Hard corals are non-reef-building, while soft corals build reefs.

Q.75 Which of the following best represents the correct implication of a species being listed as "Extinct in the Wild" (EW) under the IUCN Red List?

(a) The species is extinct in its native habitat but continues to survive in natural reserves.

(b) The species can no longer survive even under human-controlled conditions.

(c) The species is known only to persist in captivity or cultivation outside its natural range.

(d) The species has not been sighted in the wild for 50 years and is declared extinct

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Q.76 Which one of the following best describes the 'Evil Quartet' in the context of biodiversity loss?

- (a) A group of four major international wildlife trafficking syndicates.
- (b) The four most widespread invasive alien species in India.
- (c) The four primary anthropogenic causes responsible for driving species extinction.
- (d) The four most polluted rivers in the world leading to aquatic biodiversity loss.

Q.77 The "Convention on Biological Diversity" (CBD) is associated with which of the following protocols that addresses the safe transfer, handling, and use of living modified organisms (LMOs)?

- (a) Kyoto Protocol
- (b) Montreal Protocol
- (c) Cartagena Protocol
- (d) Nagoya Protocol

Q.78 Which of the following best defines the Biosphere?

- (a) It is the upper region of lithosphere.
- (b) It is the abiotic component of all forms on earth.
- (c) It is the lower atmospheric region near the hydrosphere.
- (d) It is the narrow zone where land, water and air come together to contain life forms.

Q.79 Abraham Accords, sometimes seen in news, is related to which of the following?

- (a) An international Treaty that prohibits stockpiling of biological weapons by developed countries.
- (b) Free movement of humanitarian assistance and emergency medical aid to Syria.
- (c) Universal declaration of Human Rights endorsed by the United Nations General Assembly.
- (d) Normalization agreement Between UAE and Israel to establish diplomatic relations

Q.80 Which of the following judicial decisions clarified that the burden of proving citizenship lies on the individual, especially in the context of suspected illegal migrants?

- (a) Berubari Union Case (1960)
- (b) State of Arunachal Pradesh v. Khudiram Chakma (1993)
- (c) Sarbananda Sonowal v. Union of India (2005)
- (d) S. R. Bommai v. Union of India (1994)

Q.81 Three dice are thrown together. Find the probability of getting a total of at least 6?

- (a) 103/216
- (b) 103/208
- (c) 103/108
- (d) 36/103

Q.82 Which of the following statements about Nuclear Medicine is/are correct?

- (a) Nuclear Medicine exclusively uses X-rays to create images of the body.
- (b) Radioactive materials are commonly administered to patients in Nuclear Medicine procedures.
- (c) Magnetic Resonance Imaging (MRI) is the primary imaging technique in Nuclear Medicine.
- (d) Nuclear Medicine is mainly used for diagnosing structural abnormalities only.

Q.83 Which of the following statements about Portable Document Format (PDF) is/are correct?

- (a) PDF was developed by Google.
- (b) PDF files can only contain text.
- (c) PDF is a fixed-layout format.
- (d) PDF files can be easily edited without specialized software.

Q.84 Which of the following statements about somatic cells is/are correct?

- (a) Somatic cells are reproductive cells.
- (b) Somatic cells are diploid in nature.
- (c) Somatic cells undergo meiosis during reproduction.
- (d) Mutations in somatic cells can be passed onto offspring.

Q.85 Consider the following statements:

1. Lead is commonly used as a structural material in the construction industry.
2. Lead has no known harmful effects on human health.
3. Lead-acid batteries are commonly used in vehicles.

How many of the statements given above is/are correct?

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

Q.86 Which of the following statements about the Y chromosome is correct?

- (a) The Y chromosome carries genetic information for both male and female traits.
- (b) The Y chromosome is found in both males and females.
- (c) The Y chromosome determines an individual's biological sex.
- (d) The Y chromosome is significantly larger than the X chromosome.

Q.87 Collision of black holes generates which of these?

- (a) Neutrino waves
- (b) Cosmic waves
- (c) Gravitational waves
- (d) Electromagnetic waves

Q.88 Which of the following statements about nickel is true?

- (a) Nickel is a naturally occurring element with atomic number 28.
- (b) Nickel is a soft, malleable metal primarily used in electrical wiring.
- (c) Nickel is highly reactive and readily forms compounds with other elements.
- (d) Nickel is a radioactive element commonly used in nuclear power plants.

Q.89 TB is caused by

- (a) bacteria (b) virus (c) fungus (d) none

Q.90 What is hygroelectricity?

- (a) The production of electricity from hydropower plants using water vapor.
- (b) The generation of electricity through the absorption of moisture by certain materials.
- (c) A type of electricity generated by harnessing the energy from tidal waves.
- (d) The process of converting humidity in the air into electrical energy.

Q.91 Which of the following statements about flavanols is correct?

- (a) Flavanols are a type of lipids found in animal cells.
- (b) Flavanols are a group of antioxidants found primarily in fruits and vegetables.
- (c) Flavanols are a type of carbohydrate found in grains and cereals.

(d) Flavanols are a class of hormones produced by the adrenal glands.

Q.92 Consider the following statements:

1. Protons have a positive charge and are located in the nucleus of an atom.
2. Electrons have a negative charge and are located outside the nucleus of an atom.
3. Neutrons have no charge and are located in the nucleus of an atom.

How many of the statements given above is/are correct?

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

Q.93 Phage therapy is a medical treatment that involves the use of:

- (a) Bacteria (b) Fungi
- (c) Viruses (d) Antibiotics

Q.94 Which of the following statements best describes the concept of a 'Nebula'?

- (a) A nebula is a type of planet in our solar system, located beyond the orbit of Neptune and composed primarily of gases and ice.
- (b) A nebula is a massive celestial object composed of a dense core of gas and dust, from which stars are formed.
- (c) A nebula is a small rocky body that orbits the Sun, typically found in the asteroid belt between Mars and Jupiter.
- (d) A nebula is a type of comet that originates from the outer regions of the solar system and has a highly elliptical orbit.

Q.95 Which of the following statements best describes 'Supernovae'?

- (a) Supernovae are small explosions that occur on the surface of the Sun, releasing vast amounts of energy into space.
- (b) Supernovae are giant stars that have collapsed under their own gravity, resulting in a tremendous explosion that releases an enormous amount of energy.
- (c) Supernovae are black holes that emit intense bursts of radiation and matter, creating a visible explosion of light and debris.
- (d) Supernovae are collisions between asteroids or comets in outer space, causing a release of energy and the formation of new celestial bodies.

Q.96 Which of the following statements about Chikungunya is/are correct?

- (a) Chikungunya is caused by a bacterium.
- (b) The primary mode of transmission of Chikungunya is through infected mosquitoes.
- (c) Chikungunya primarily affects the respiratory system.
- (d) It can be prevented by vaccination.

Q.97 A fertilized egg has:

- (a) 23 chromosomes, 23 chromatids.
- (b) 46 chromosomes, 46 chromatids
- (c) 46 chromosomes, 92 chromatids.
- (d) 23 chromosomes, 46 chromatids.

Q.98 Which of the following statements about lignite is true?

- (a) Lignite is a type of sedimentary rock.
- (b) Lignite has the highest carbon content among all coal types.
- (c) Lignite is commonly used as fuel in power plants.
- (d) Lignite is formed by the metamorphism of bituminous coal.

Q.99 Which of the following statements correctly describes the difference between Prokaryotes and Eukaryotes?

- (a) While prokaryotes are always unicellular organisms, eukaryotes can be either unicellular or multicellular.
- (b) Unlike prokaryotes, eukaryotes have no membrane-bound organelles.
- (c) Prokaryotes have a nucleus, while eukaryotes do not.
- (d) Prokaryotes have linear DNA, while eukaryotes have circular DNA.

Q.100 What makes the cone shape of an Ice Stupa especially efficient in preserving ice in high-altitude arid regions?

- (a) It traps air inside the structure, increasing thermal insulation.
- (b) It minimizes surface area exposed to solar radiation.
- (c) It enables faster melting from the top down for early irrigation.
- (d) It directs wind to circulate cold air uniformly around the structure.

V.KUMAR'S ACADEMY

Q.101 Consider the following statements about CAPTCHA:

- 1.CAPTCHA automatically blocks all automated bots without user interaction.
- 2.CAPTCHA is used to prevent brute-force attacks.
- 3.CAPTCHA systems are primarily used to detect phishing websites.

How many of the above statements is/are correct?

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

Q.102 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 using the code given below:

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

Q.103 Why is the Bombay Blood Group (hh phenotype) considered unique in transfusion medicine?

- (a) Individuals with this blood type can donate blood to any ABO group.
(b) It was first discovered in South Africa but is most prevalent in Europe.
(c) Individuals with this blood type cannot receive blood from any ABO or O-negative donors.

(d) It is a recently discovered blood group with a global prevalence of more than 5%.

Q.104 What is the main source of power in Wave Energy Conversion systems?

- (a) Gravitational pull from the Moon.
(b) Salt concentration difference between freshwater and seawater.
(c) Temperature difference between surface and deep water.

(d) Kinetic energy from ocean waves.

Q.105 Which of the following is NOT a method used for age estimation in forensic science?

- (a) Radiographic techniques
(b) Epigenetic clock technique
(c) Ossification test
(d) Blood type analysis

Q.106 Consider the following,

- | | |
|----------|----------------------|
| 1. Water | 2. Decomposers |
| 3. Soil | 4. Non- Green plants |

How many of the above components is/are Biotic components of Environment?

- (a) Only one (b) Only two
(c) Only three (d) All four

Q.107 The 'Man and the Biosphere (MAB) Programme', often seen in the news, is an initiative of which one of the following organizations?

- (a) The United Nations Environment Programme (UNEP)
- (b) The International Union for Conservation of Nature (IUCN)
- (c) The United Nations Educational, Scientific and Cultural Organization (UNESCO)
- (d) The World-Wide Fund for Nature (WWF)

Q.108 During a planet parade, why do the outer planets (e.g., Jupiter and Saturn) appear to move slower than inner planets like Venus and Mercury?

- (a) Outer planets have longer orbital periods due to greater distances from the Sun.
- (b) Their visibility is affected by their retrograde motion.
- (c) Outer planets are more massive and experience stronger gravitational forces.
- (d) Inner planets travel slower because of their smaller orbital radii.

Q.109 Which of the following ISRO launch vehicles has successfully demonstrated cryogenic propulsion technology?

- (a) PSLV
- (b) GSLV Mk I and Mk II
- (c) GSLV Mk III (LVM3)

(d) Both (b) and (c)

Q.110 Which of the following retinal diseases is caused by genetic mutations and can lead to progressive vision loss?

- (a) Diabetic Retinopathy
- (b) Retinal Detachment
- (c) Age-related Macular Degeneration (AMD)
- (d) Retinitis Pigmentosa

Q.111 Which of the following international treaties or agreements is India not a part of, despite the Atomic Energy Commission's involvement in international nuclear diplomacy?

- (a) Treaty on the Non-Proliferation of nuclear weapons (NPT)
- (b) Convention on Nuclear Safety (CNS)
- (c) Joint Convention on the Safety of Spent Fuel Management
- (d) Vienna Convention on Civil Liability for Nuclear Damage

Q.112 A train 105 m long passes a person, running at 2 kmph in the direction opposite to that of the train, in 2 seconds. The speed of the train is:

Find the average number of children who opted for Swimming, Yoga and Music

- (a) 100 kmph
- (b) 123 kmph
- (c) 187 kmph
- (d) 144 kmph

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Q.113 Shekhar speaks truth in 2/5 cases and Shayara lies in 3/7 cases. What is the percentage of cases in which both Shekhar and Shayara contradict each other in stating a fact?

- (a) 72.6%
- (b) 51.4%
- (c) 62.3%
- (d) 47.5%

Q.114 Divide Rs. 11000 into two parts such that the simple interest received on the first part for 3 years at 5 % rate of interest per annum is equal to the simple interest received on the second part for 2 years at 9 % rate of interest per annum. Find the two parts?

- (a) Rs. 7000, Rs. 4000
- (b) Rs. 6000, Rs. 5000
- (c) Rs. 3000, Rs. 8000
- (d) Rs. 4000, Rs. 7000

Q.115 The primary advantage of nanobubbles in water purification is:

- (a) Rapid dissolution of gases into the atmosphere
- (b) Absorbing impurities through surface cohesion
- (c) Coalescing to form larger bubbles for better visibility
- (d) Prolonged interaction with water for efficient cleaning

Q.116 What happens when antimatter comes into contact with matter?

- (a) They combine to form heavier particles.
- (b) Both annihilate each other, producing energy.
- (c) They neutralize and become electrically inert.
- (d) Antimatter absorbs matter and becomes stable.

Q.117 What is the primary cause of the Doppler Effect?

- (a) Changes in wave amplitude due to medium resistance.
- (b) Reflection of waves from stationary Surfaces.
- (c) Variation in wave intensity due to Distance.
- (d) Relative motion between the source and the observer.

Q.118 The Cirus reactor, operational since 1960, was pivotal in India's nuclear program, driving scientific innovation and enabling the 1974 "Smiling Buddha" nuclear test.

Which of the following was a significant use of the Cirus reactor?

- (a) Development of India's fast breeder reactor program.
- (b) Production of isotopes for medicine, agriculture, and industry.
- (c) Development of thorium-based reactors.
- (d) Production of plutonium for space Missions.

V.KUMAR'S ACADEMY

Q.119 The sum of two numbers is 10.
Their product is 20. Find the sum
of the reciprocals of the two
numbers.

- (a) 1 (b) $(3/5)$ (c) $(1/2)$ (d) $(11/6)$

Q.120 Consider the following
phenomena :

1.Light is affected by gravity.

2.The Universe is constantly
expanding.

3.Matter warps its surrounding space-
time.

Which of the above is/are the
prediction/predictions of Albert
Einstein's General Theory of Relativity,
often discussed in media?

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

Q.121 Which of the following statements
best describes "carbon
fertilization"?

- (a) Increased plant growth due to
increased concentration of carbon
dioxide in the atmosphere
(b) Increased temperature of Earth due
to increased concentration of carbon
dioxide in the atmosphere.
(c) Increased acidity of oceans as a
result of increased concentration of
carbon dioxide in the atmosphere.
(d) Adaptation of all living beings on
Earth to the climate change brought
about by. The increased concentration
of carbon dioxide in the atmosphere.

Q.122 "Each day is more or less the
same, the morning is clear and
bright with a sea breeze; as the
sun climbs high in the sky, heat
mounts up, dark clouds form, than
rain comes with thunder and
lightning. But rain is soon over."

Which of the following regions is
described in the above passage?

- (a) Savannah (b) Equatorial
(c) Monsoon (d) Mediterranean

Q.123 Which of the following pairs of
States of India indicates the
easternmost and Westernmost
State?

- (a) Assam and Rajasthan
(b) Arunachal Pradesh and Rajasthan
(c) Assam and Gujarat
(d) Arunachal Pradesh and Gujarat

Q.124 Which one of the following is the
national aquatic animal of India?

- (a) Saltwater crocodile
(b) Olive ridley turtle
(c) Gangetic dolphin (d) Gharial

Q.125 A two digit number get reversed
when $1/5^{\text{th}}$ of it is added to it. Find
the 80% of that no.

- (a) 36 (b) 18
(c) 15 (d) 26

V.KUMAR'S ACADEMY

SPACE FOR ROUGH WORK

