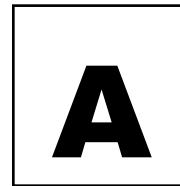


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**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO****T.B.C.: FIAS-SFG24-L2T14**  
**Serial No.****Test Booklet Series****TEST BOOKLET**  
**GENERAL STUDIES & CSAT****Time Allowed: ONE HOUR****Maximum Marks: 100**

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**I N S T R U C T I O N S**

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOK.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A, B, C or D carefully without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Name, Email Id and Mobile No. on the test booklet in the Box provided alongside. *DO NOT* write anything else on the Test Booklet.
4. This Test Booklet contains **50** items (questions). Each item is printed in **English**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose *ONLY ONE* response for each item.
5. You have to mark all your responses *ONLY* on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. **All** items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator *only* the *Answer Sheet*. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong answers:**

Name:

Email Id:

Mobile No:

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

- (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
- (ii) If a candidate gives more than one answer, it will be treated as **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
- (iii) If a question is left blank i.e., no answer is given by the candidate, there will be **no penalty** for that question.

**Q.1)** Which one of the following is a reason why astronomical distances are measured in light-year?

- a) Distances among stellar bodies do not change.
- b) Gravity of stellar bodies does not change.
- c) Light always travels in straight line.
- d) Speed of light is always same.

**Q.2)** Ethanol-blended petrol is primarily derived from organic sources such as sugarcane. In the context of the effects of ethanol blending in petrol consider the following:

- 1. It leads to reduction in the octane number.
- 2. It drastically reduces the efficiency of fuel.
- 3. It increases the price of fuel.

How many of the above statements are correct?

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

**Q.3)** Consider the following statements:

**Statement-I:** Carbon dating is applicable only to organic materials.

**Statement-II:** Carbon dating measures the decay of carbon-14, which is absorbed by living organisms from the atmosphere and food sources while they are alive.

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

**Q.4)** Consider the following statements:

**Statement-I:** Outer walls of the house constructed with hollow bricks are better at insulating the house from heat.

**Statement-II:** The hollow spaces in bricks trap air and enhance insulation.

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

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

**Q.5)** Consider the following statements:

- 1. Freedom of trade and commerce through the medium of internet is a constitutionally protected right in India.
- 2. Internet shutdowns can be ordered only by Cabinet Secretary of the Union Government.
- 3. Government decision of internet shutdown does not fall under the purview of judicial review.

How many of the above statements are correct?

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

**Q.6)** Capillarity is essential for various natural and technological processes, where it enables the movement of fluids through narrow spaces without the assistance of external forces. In this context consider the following statements: If there was no phenomenon of capillarity:

- 1. Plants would struggle to transport water from roots to leaves.
- 2. Ink would not flow evenly in pens.
- 3. Soil would be less effective at distributing water to plant roots.
- 4. Paper towels would not absorb spills efficiently.

How many of the above statements are correct?

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

**Q.7)** A redox reaction involves the transfer of electrons between reactants, resulting in changes to their oxidation states. In this respect, consider the following:

1. Photosynthesis in plants
2. Respiration in animals
3. Combustion of fuels
4. Corrosion of iron pipes

How many of the mentioned processes involve redox reactions?

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

**Q.8)** Consider the following statements:

**Statement I:** Applying grease on iron prevents it from rusting

**Statement II:** Galvanization is a process which prevents rusting iron by depositing a thin layer of zinc metal on iron objects.

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

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

**Q.9)** Consider the following statements:

**Statement I:** Light waves can propagate through vacuum without requiring a medium.

**Statement II:** Light waves are mechanical in nature which rely on particles or atoms to propagate.

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

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

**Q.10)** Consider the following:

A magnet may lose its magnetic property if it is:

1. exposed to high temperatures.
2. repeatedly struck with a hammer
3. exposed to the conflicting magnetic fields.

How many of the above situations can lead to demagnetization of a magnet?

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

**Q.11)** Consider the following statements:

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.12)** Consider the following:

1. Litmus paper turning into blue.
2. Phenolphthalein solution changes into pink colour.
3. Onion becoming odourless.
4. Turmeric solution turning into red.
5. Tea colour becoming lighter.

How many of the changes listed above occur if the above-mentioned substances are added into basic medium?

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

**Q.13)** With reference to 'applications of Ultrasound', consider the followings:

1. Removing water droplets from a mobile phone.
2. Detecting cracks and flaws in metal blocks.
3. Cleaning machine parts
4. Detecting abnormalities of the foetus.
5. Treating kidney stone ailments

How many of the above are correct applications of ultrasound?

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

**Q.14)** Consider the following statements:

**Statement – I:** Sound generally travels faster in summer than in winter.

**Statement – II:** Speed of sound in a medium depends on the temperature of the medium.

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

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

**Q.15)** Consider the following countries:

- 1. Iran
- 2. Saudi Arabia
- 3. United Arab Emirates
- 4. Ethiopia

How many of the above countries have been added to the BRICS group?

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

**Q.16)** Bleaching powder is widely used in daily life and in industries. In this context consider the following:

- 1. treating waste containing cyanide.
- 2. stain removal in cotton clothes
- 3. disinfecting drinking water
- 4. controlling mosquito population
- 5. as fire extinguishers.

How many of the above are the applications of bleaching powder?

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

**Q.17)** Work done will be zero when the force is applied to an object, creates:

- a) No displacement
- b) Decrease in velocity
- c) Energy loss
- d) Positive acceleration

**Q.18)** Consider the following statements:

**Statement – I:** During thunderstorms it is better to stay in a car to avoid being hit by lightning.

**Statement – II:** Rubber tires of car act as an electrical insulator.

Which one of the following is correct with respect to the above statements?

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

**Q.19)** Consider the following metals:

- 1. Manganese
- 2. Chromite
- 3. Lead
- 4. Tin
- 5. Bauxite

How many of the above are ferrous minerals?

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

**Q.20)** With reference to 'Hydrogen fuel cell', which of the following statements best describes the process involved in the cell?

- a) Heat energy transfers into electric energy.
- b) Heat energy transfers into chemical energy.
- c) Electric energy transfers into Chemical energy.
- d) Chemical energy transfers into electric energy.

**Q.21)** In a pressure cooker, the temperature at which the food is cooked depends mainly upon which of the following?

- 1. Area of the hole in the lid
- 2. Temperature of the flame
- 3. Weight of the lid

Select the correct answer using the code given below:

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

**Q.22)** Which of the following is the reason for poor electrical conductivity of the non-metals?

- a) Absence of covalent bonds in the non-metals.
- b) Presence of free electrons in the outer shell.
- c) Absence of free electrons in the outer shell.
- d) Formation of ionic bond in the non-metals.

**Q.23)** Carbon nanotube (CNT) is a promising nanomaterial with excellent mechanical, electrical, thermal, and chemical stability. In this context consider the following:

- 1. fibers spun of CNTs can be used in body and vehicle armor
- 2. they can be incorporated into metal coatings to improve their electrical conductivity.
- 3. they can be used to produce conductive ink for printing electronic components
- 4. they can be integrated into latex gloves for touchscreen use
- 5. lightweight spacecraft components can be made using CNTs.

How many of the above are applications of Carbon nanotube (CNT)?

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

**Q.24)** The four fundamental forces of nature viz. gravity, electromagnetism, and the strong and weak nuclear forces are responsible for shaping the universe we inhabit. In this context, consider the following statements:

- 1. The strong nuclear force holds together the quarks that make up protons and neutrons
- 2. Electromagnetic force is the strongest force.
- 3. Weak nuclear force is responsible for particle decay.
- 4. The force of gravity depends on the mass of interacting objects.

How many of the above statements are correct?

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

**Q.25)** Consider the following statements:

- 1. All the judges of the Supreme Court including Chief Justice of India (CJI) are equal in terms of their judicial power.
- 2. CJI has been called Master of Roster due to his administrative powers.

Which of the above statements is/are correct?

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

**Q.26)** Consider the following statements:

**Statement- I:** Toothpaste can reduce tooth decay by inhibiting the growth of cavity causing bacteria.

**Statement-II:** Toothpaste is generally basic in nature which helps neutralise acids in the mouth.

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

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

**Q.27)** Consider the following statements:

**Statement- I:** Vegetable oils are considered healthier than animal fats.

**Statement-II:** Vegetable oils are generally low in saturated fat and high in polyunsaturated fat than Animal fats.

Which one of the following options is correct with respect to the above statements?

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



**Q.28)** Which of the following best describes the phenomenon “buoyant force acting on an object submerged in a fluid is equal to the weight of the fluid displaced by the object.”?

- a) Gauss Law
- b) Kepler's Law
- c) Archimedes' principle
- d) Faraday's principle

**Q.29)** With reference to permanent hardness of water, consider the followings:

- 1. Calcium bicarbonate ( $\text{Ca}(\text{HCO}_3)_2$ )
- 2. Calcium sulphate ( $\text{CaSO}_4$ )
- 3. Magnesium sulphate ( $\text{MgSO}_4$ )
- 4. Magnesium bicarbonate ( $\text{Mg}(\text{HCO}_3)_2$ )

How many of the above-mentioned salts can cause permanent hardness of water?

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

**Q.30)** While cooking, if the bottom surface of the pot or pan is getting blackened then it suggests that:

- a) the fuel has high moisture content.
- b) the food is uncooked.
- c) there is incomplete combustion of fuel.
- d) heat induced reaction with pan has caused decomposition of carbon.

**Q.31)** Consider the following phenomena:

- 1. Size of the sun at dusk.
- 2. Color of the sun at dawn
- 3. Moon being visible at dawn
- 4. Twinkle of stars in the sky
- 5. Polestar being visible in the sky

Which of the above are optical illusions?

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

**Q.32)** Uranium is widely used to produce nuclear energy primarily due to which one of the following reasons?

- a) It has the highest melting point of all naturally occurring elements.
- b) Compared to other elements, uranium atoms split easily.

- c) It undergoes spontaneous fission at a rate conducive to controlled nuclear reactions.
- d) It can be easily converted into a gaseous form for nuclear fusion processes.

**Q.33)** With reference to 'Isotopes', consider the following statements:

- 1. They are the atoms of the same element, having the same atomic number but different mass numbers.
- 2. They have similar chemical properties but different physical properties
- 3. An isotope of cobalt is used in the treatment of goitre.

How many of the above statements are correct?

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

**Q.34)** 'Aspartame' is often mentioned in news in the context of:

- a) a pesticide used in organic farming to enhance crop resistance to pests.
- b) a chemical compound utilized in the manufacturing of biodegradable plastics.
- c) an artificial sweetener commonly used in diet sodas and sugar-free products.
- d) a pharmaceutical drug developed for the treatment of Alzheimer's disease.

**Q.35)** Consider the following:

- 1. Licenses
- 2. Quotas
- 3. Local Content requirement
- 4. Embargo

How many of the above are type of non-tariff barriers?

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

**Q.36)** Which of the following can lead to increased acidic levels in the soil?

- a) Regular application of lime to the soil.
- b) Increased soil aeration through frequent plowing.
- c) Reduced microbial activity in the soil.
- d) Excessive use of nitrogen-based fertilizers.

**Q.37)** Consider the following statements:

**Statement-I:** Compounds such as alcohol and glucose are categorized as acids as they readily release  $H^+$  ions in the solution.

**Statement-II:** Both alcohol and glucose contain hydrogen atoms, which are essential for forming bonds and functional groups in organic compounds.

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

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

**Q.38)** Consider the following:

- 1. Cooking an egg.
- 2. Melting of wax.
- 3. Sublimation of dry ice.
- 4. Rusting of iron.
- 5. Burning of wood.
- 6. Dissolving sugar in water.

How many of the above are examples of physical change?

- a) Only three
- b) Only four
- c) Only five
- d) All six

**Q.39)** Consider the following:

- 1. Refraction
- 2. Dispersion of light
- 3. Reflection

How many of the above are directly involved in the formation of rainbow?

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

**Q.40)** Food cans are coated with tin rather than zinc in the recent days. Which of the following best explains the reason for the same?

- a) Tin has higher melting point than Zinc.
- b) Tin is less reactive than Zinc.
- c) Tin is biodegradable, but zinc is not.
- d) Tin is cheaper than Zinc.

**Q.41)** Ball bearings are used in bicycles, cars, etc., because

- a) the actual area of contact between the wheel and axle is increased
- b) the effective area of contact between the wheel and axle is increased
- c) the effective area of contact between the wheel and axle is reduced
- d) None of the above statements is correct

**Q.42)** Consider the following statements:

**Statement-I:** Tungsten is used for making filaments in incandescent light bulbs.

**Statement-II:** Tungsten has the highest electrical conductivity among metals.

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

**Q.43)** Mass number of an atom is defined as the total number of:

- a) Protons
- b) Protons and neutrons
- c) Protons and electrons
- d) Protons, electrons and neutrons

**Q.44)** Consider the following statements:

**Statement-I:** Gallium is used in the manufacture of integrated circuits, light-emitting diodes (LEDs), and solar cells.

**Statement-II:** Gallium has lower melting point compared to other metals.

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

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

**Q.45)** Consider the following statements regarding Central Bureau of Investigation (CBI)

1. It is a statutory crime investigating body.
2. It is the nodal police agency in India for coordination with Interpol.

Which of the above statements is/are correct?

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

**Q.46)** Which of the following equations are correct if interchange of only two signs are allowed?

1.  $4 - 9 \times 18 + 9 : 3 = 21$
2.  $15 : 9 \times 3 - 74 + 2 = 5$
3.  $16 - 21 : 7 \times 6 + 3 = 31$
4.  $4 \times 2 + 6 : 2 - 12 = 17$

Select the correct answer using the code given below:

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

**Q.47)** The average score in an examination of 12 students of a class is 60. If the scores of the top six students are not considered, the average score of the remaining students falls by 3. The pass mark was 40 and the maximum mark was 100. It is also known that none of the students failed. If each of the top six scorers had distinct integral scores, what is the maximum possible score of the topper?

- a) 98
- b) 85
- c) 78
- d) 83

**Q.48)** If January 1st of a leap year was a Wednesday, what day of the week was December 1<sup>st</sup> of the same year?

- a) Tuesday
- b) Sunday
- c) Monday
- d) Friday

**Directions for the following 2 (two) items:**

Read the following **two** passages and answer the items that follow the passages. Your answers to these items should be based on the passages only.

### Passage-I

In the exploration of the principles of justice and liberty, the philosophical discourse of the 19th century presents an examination of the tension between individual freedoms and the overarching authority of society. This analysis posits that the vitality of personal autonomy in the pursuit of happiness is paramount, yet it acknowledges the necessity of societal constraints to prevent harm to others. The argument hinges on the premise that every individual possesses the inherent right to self-determination, free from undue interference, so long as their actions do not infringe upon the rights and well-being of others. This balance is deemed crucial for the flourishing of a just society where liberty does not descend into anarchy. Moreover, the discourse elaborates on the role of societal norms and legislation in delineating the boundaries of individual actions, suggesting that these guidelines should be crafted not to stifle personal growth but to safeguard communal harmony. The philosophy underlines the importance of dialogue and tolerance in navigating the complexities of individual and collective interests, advocating for a proportional response from societal institutions to the diverse expressions of personal liberty.

**Q.49)** Which one of the following statements best reflects the *crux of the passage*?

- a) Individual liberty should be unrestricted in all aspects of society, as personal autonomy is the highest form of justice.
- b) Societal norms and legislation are unnecessary constraints on personal freedom and hinder the pursuit of happiness.
- c) A balance between individual freedom and societal constraints is essential for the well-being of a just society, ensuring personal autonomy while preventing harm to others.
- d) The rights and well-being of the community should always take precedence over individual liberties, regardless of the circumstances.



**Passage-II**

The governance of transboundary water resources represents a critical juncture in international relations, encapsulating a multifaceted web of legal, environmental, and geopolitical considerations. At its core, the doctrine of equitable and reasonable utilization seeks to balance the divergent interests of riparian states, advocating for an allocation of water resources that respects the needs and rights of all parties involved. This principle, while noble in its intent, often clashes with the realities of upstream-downstream dynamics, where upstream states possess an inherent geographical advantage over their downstream counterparts. The inherent tension between sovereignty and shared responsibility underpins the challenges of transboundary water management, necessitating a delicate equilibrium between national interests and collective welfare. The complexity of these water disputes is further compounded by the variable nature of water itself—being both a vital, life-sustaining resource and a potential source of conflict. Climate change and increasing water scarcity add layers of urgency to these disputes, pressing states to reconsider traditional notions of water rights in light of sustainability and mutual survival. The role of international water treaties and river basin organizations emerges as pivotal in this context, offering frameworks for cooperation and conflict resolution. However, the efficacy of such institutions is often contingent upon the political will of member states and their capacity to transcend parochial concerns in favor of a more integrative approach to water governance. This intricate dance between cooperation and conflict, sovereignty and interdependence, highlights the paradoxical nature of transboundary water management, where water flows oblivious to political boundaries, yet its governance remains ensnared within them.

**Q.50)** Based on the above passage, the following assumptions have been made:

1. International treaties and river basin organizations are successful in completely eliminating conflicts over transboundary water resources through strict

enforcement of equitable water distribution.

2. The geographical advantage of upstream states grants them unconditional priority over water resources, making downstream concerns secondary in transboundary water governance.

Which of the assumptions given above is/are correct?

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