

UPSC Prelims Test Series 2019

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO**

TEST BOOKLET

GENERAL STUDIES

TOPIC: SCIENCE AND TECHNOLOGY - I (8, 9, 10 NCERT)

Time Allowed: One hour

Maximum Marks: 100

INSTRUCTIONS

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 Roll Number 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.
6. See directions in the Answer Sheet.
7. **All** items carry equal marks.
8. 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.
9. 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.
10. Sheets for rough work are appended in the Test Booklet at the end.
11. **Penalty for wrong answers:**
12. THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.

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.

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.

If a question is left blank i.e., no answer is given by the candidate, there will be **no penalty** for that question.

**1. The 'Cobweb phenomenon' can occur in the case of which among the following crops?**

1. Tomatoes
2. Tur dal
3. Red Chillies
4. Potatoes

**Select the correct answer using the code given below:**

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

**2. Why rainforests are characterized by high diversity of species?**

1. Round the year supply of abundant energy in a consistent manner
2. The canopy structure of rainforests
3. High rainfall and temperature

**Select the correct answer using codes below:**

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

**3. Consider the following statements about honey**

1. It is a food stored by bees in their hives
2. Honey bees transform nectar into honey by a process of regurgitation and evaporation.
3. Most microorganisms do not grow in honey because of its high water activity

**Which of the above statements is/are correct?**

- (a) 1 and 2 Only
- (b) 2 and 3 Only
- (c) 1 and 3 Only
- (d) All Three

**4. How does Ozone protect us from the harmful ultraviolet radiation?**

- (a) By reflecting the UV radiation back to space
- (b) By absorbing the UV radiation and breaking down into oxygen
- (c) By converting the harmful UV radiation into useful UV radiation
- (d) By changing the frequency of UV radiation coming to earth

**5. Consider the following statements about sprouting,**

1. Sprouts are said to be rich in digestible energy, bio available vitamins, minerals, amino acids, proteins, and phytochemicals, as these are necessary for a germinating plant to grow.
2. During sprouting, because of hydration, the reserve chemical constituents, such as protein, starch and lipids, are broken down by enzymes into simple compounds that are used to make new compounds.

**Which of the above statements is/are correct?**

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) None

**6. Consider the following statements**

1. The vascular tissue for the transport of water and nutrients in the plant is called the xylem
2. Veins are the vessels which carry carbon dioxide-rich blood from all parts of the body back to the heart.
3. Arteries carry oxygen-rich blood from the heart to all parts of the body
4. The arteries have thin walls whereas the veins have thick elastic walls
5. The food synthesized by leaves has to be transported to all parts of the plant. This is done by the vascular tissue called the phloem.

**Which of the above statements is/are correct?**

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

**7. Which of the following can be a low-cost technique(s) to separate healthy seeds from damaged seeds?**

- (a) Treating the seeds with starch
- (b) Floating seeds on water
- (c) Checking whether the seed has sharp ends
- (d) All of the above

**8. Consider the following statements about electric fuses,**

1. Wires made from some special materials melt quickly and break when large electric currents are passed through them. These wires are used for making electric fuses.
2. A fuse is a safety device which prevents damages to electrical circuits and possible fires.
3. If by accident the current exceeds this safe limit, the wires may become overheated and may cause fire. If a proper fuse is there in the circuit, it will blow off and break the circuit.
4. The fuse element is made of zinc, copper, silver, aluminium, or alloys to provide stable and predictable characteristics.

**Which of the above statements is/are correct?**

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

**9. With reference to different kinds of fibers, consider the following statements**

1. Jute fiber is obtained from the leaves of the jute plant
2. Wool is also obtained from the hair of rabbits, yak and camels
3. Silk fiber is drawn from the cocoon of silkworm

**Which of the above statements is/are correct?**

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

**10. Which of the following planets in the solar system will float on water if we had a large enough pool of water?**

- (a) Mercury, Venus and Saturn
- (b) Saturn and Neptune
- (c) Mars and Jupiter
- (d) Saturn only

**11. Which of the following statements regarding concave and convex mirrors is incorrect?**

- (a) Concave mirrors are used by dentists, doctors and in torches
- (b) Concave mirror is also called as fish eye mirror and these are used in vehicle mirrors
- (c) The image on a convex mirror is always virtual, diminished (smaller), and upright
- (d) Unlike convex mirrors, concave mirrors show different image types depending on the distance between the object and the mirror.

**12. The inner walls of the small intestine have thousands of fingerlike outgrowths. These are called villi. Now consider the following statements about these villi.**

1. The villi increase the surface area for absorption of the digested food
2. Each villus has a network of thin and small blood vessels close to its surface. The surface of the villi absorbs the digested food materials.
3. The absorbed substances are transported via the blood vessels to different organs of the body where they are used to build complex substances such as proteins.

**Which of the above statements is/are correct?**

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

**13. Consider the following statements.**

1. Excessive use of Chemical fertilizers makes the soil basic.
2. If the soil is basic, organic matter is added to rejuvenate it.

**Which of the above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None

**14. Which of the following can be classified as Chemical changes?**

1. Burning of Wood
2. Freezing a mixture of water and common salt
3. Absorption of Ink by a blotting paper

**Select the correct answer using the codes below.**

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

**15. Magnesium deficiency in plants can cause degradation of chlorophyll in old leaves. In what type of soil is Magnesium deficiency most likely to occur due to leaching?**

- (a) Red soil with high loam content
- (b) Strongly acidic, light and sandy soils
- (c) Clayey soil which has high mineral adhesion
- (d) Any soil in areas of moderate rainfall

**16. Even though electromagnetism is far stronger than gravitation, electromagnetic attraction is not relevant for large celestial bodies. Why?**

1. Net electric charge of such bodies is zero.
2. Electromagnetic force is a short-range force.

**Which of the above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None

**17. Magnetic Resonance Imaging (MRI) is based on the fact that**

1. Magnetic field inside our bodies is similar and equal in magnitude to that of earth.
2. Heat generated by our body parts can be traced by electromagnetic field.

**Which of the above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None

**18. Consider the following about Blue-Green Algae.**

1. They can fix atmospheric nitrogen in aerobic conditions.
2. They can be used as bio-fertilizer.
3. They do not perform photosynthesis unlike normal algae.
4. They can be used to produce algal biofuel.

**Select the correct answer using the codes below.**

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

**19. Carbon Monoxide can be produced from or found in**

1. Incomplete burning of petrol and diesel
2. Naturally in groundwater and ice caps
3. Operation of a kitchen stove in enclosed space
4. Eruption of volcanoes

**Select the correct answer using the codes below.**

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

**20. Which of the following problem(s) occur when using dry ice as a fire extinguisher?**

1. It causes harm electrical equipment nearby resulting in fire.
2. It aggravates fire situations caused due to oil spills.

**Which of the above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None

**21. Auxin performs which of the following functions in plants?**

- (a) Regulates growth and development
- (b) Performs reproductive functions
- (c) Protects against pests and insects
- (d) Helps synthesize products of photosynthesis

**22. A mixture of oxygen and ethyne is burnt for welding. Why a mixture of ethyne and air is not used?**

1. Ethyne may not burn completely with air as with pure oxygen.
2. Without mixing oxygen, it is difficult to reach high temperatures needed for welding.

**Which of the above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None

**23. Bagasse can be used to manufacture**

1. Biofuel
2. Paper
3. Fertilizers

**Select the correct answer using the codes below.**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All of the above

**24. Consider the following statements**

1. Typhoid fever can be confirmed by Widal Test.
2. Malaria is caused by fungi.

**Which of the above statements is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) 1 and 2
- (d) None

**25. The bulbs are usually filled with chemically inactive nitrogen and argon gases to**

1. Increase the illumination of the bulb
2. Prolong the life of filament
3. Change the heat profile of the filament
4. Reduce the power consumption of the bulb

**Select the correct answer using the codes below.**

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

**26. AIDS virus is called a retrovirus because it has**

- (a) DNA genome
- (b) RNA genome
- (c) No genome
- (d) Large amount of genome

**27. In the technique of Vegetative Propagation**

- (a) Multiple plants are involved to produce a progeny
- (b) Only one plant is involved in creating an offspring
- (c) Artificial breeding is done through pollination
- (d) Genes of particular plant species are preserved for progenies

**28. Litmus can be extracted from**

- (a) Rhizobium
- (b) Mycorrhizae
- (c) Lichens
- (d) Corals

**29. Plant tissue culture or Micropropagation is**

1. Used to produce clones of a plant
2. Performed in the wild
3. Used to conserve rare or endangered plant species

**Select the correct answer using the codes below.**

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All of the above

**30. A very small amount of baking soda is added to fresh milk. Why?**

- (a) To disinfect the curd from viruses
- (b) To avoid the oxidation of milk for longer periods of time
- (c) To prevent the milk from turning to curd for longer periods
- (d) To separate the water content of milk

**31. Which of the following is not correctly matched?**

- (a) Erythrocytes -RBC
- (b) Leukocytes- WBC
- (c) Thrombocytes-Platelets
- (d) None of these

**32. The acoustics of a theatre can be changed by**

1. Changing its architecture
2. Changing its building material
3. Reducing or increasing the audience sitting in the place

**Select the correct answer using the codes below.**

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All of the above

**33. Sonic boom is a phenomenon related with**

- (a) Ultrasonic sounds produced by small vertebrates
- (b) Supersonic sounds produced by moving objects
- (c) Destruction of sea bed due to SONAR waves
- (d) Repeated reflection of sound in a closed space that increases its effect manifold

**34. With reference to the following pairs,**

1. Beriberi: Weak muscles and very little energy to work
2. Scurvy: Bones become soft and bent
3. Rickets: Bleeding gums, wounds take longer time to heal

**Which of the above pairs is/are incorrect?**

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

**35. Wool industry is an important means of livelihood for many people in our country. But sorter's job is risky as sometimes they get infected by a bacterium**

- (a) Clostridium
- (b) Anthrax
- (c) Salmonella
- (d) Aspergillus

**36. The organizations that oversee the keeping of international standards of measurement are**

1. International Bureau of Weights and Measures (IBWM)
2. United Nations Trusteeship Council (UNTC)
3. General Conference on Weights and Measures
4. International Union for Conservation of Nature (IUCN)

**Select the correct answer using the codes below.**

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

**37. Amongst the following, the examples of "Contact Forces" are**

1. Electromagnetic Force
2. Gravitational Force
3. Frictional Force
4. Air resistance
5. Viscous Force

**Select the correct code**

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

**38. Carbohydrates are vital source of energy for any living organism. Consider the following with respect to various types of energy resources in plants and animals.**

1. Glycogens are solely coming from animals, specifically made by the liver and the muscles, while the starch solely comes from the green plants and staple foods like potatoes and cassavas.
2. Cellulose occurs exclusively in plants and it is the most abundant organic substance in plant kingdom.
3. Human store glucose as Starch as well as Gycogens coming from plants and animals respectively.

**Select the correct code/s**

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

**39. Biodiesel can be produced from among the following**

1. Jatropha
2. Pongamia Pinnata
3. Sunflower
4. Rapeseeds

**Select the correct code**

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

**40. In organisms called lichens, what is the symbiotic relationship?**

- (a) fungus provides shelter, water and minerals; and algae provides food
- (b) bacteria provides protection against parasites; and algae provides food
- (c) fungus provides minerals and bacteria provides decayed matter to fungi
- (d) algae provides shelter, water and minerals; and fungus provides food

**41. Why are root hairs important for a plant?**

1. It increases the surface area of the root for the absorption of water and mineral nutrients dissolved in water.
2. It prepares food for the plant stems.

**Which of the above is/are correct?**

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None

**42. Which of the following is true about Cobalt-60 ?**

1. It is a natural isotope of cobalt.
  2. It has very short half-life period of 5.27 years.
  3. It is used in medical radio-therapy.
- (a) Only (1) and (2)
  - (b) Only (2) and (3)
  - (c) Only (1) and (3)
  - (d) All of the above

**43. Which of the following endocrine glands can function independent of the pituitary gland?**

- (a) Thyroid
- (b) Gonads
- (c) Adrenals
- (d) Parathyroid

**44. Which of the following physical phenomena are responsible for the formation of Rainbow when sunlight falls on drops of rain?**

- (a) Refraction
- (b) Dispersion
- (c) Internal Reflection
- (d) All of the Above

**45. With reference to Sound waves consider the following statements:**

1. Human ear is capable of detecting sound waves ranging between approximately 20 Hz to 20 000 Hz.
2. Sound waves in air are Transverse waves, where displacement of the medium is parallel to the propagation of the wave.
3. Sound generally travels faster in gases and liquids than in Solid.

**Which of the statements given above is/are correct?**

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

**46. Consider the following statements:**

1. Baking Soda can be used as a fire extinguisher
2. Milk of magnesia is used as an antacid

**Which of the statements given above is/are correct?**

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

**47. Consider the following statements:**

1. If the pH of the rain water drops below 7 then it is called acid rain.
2. Oxides of nitrogen and carbon after oxidation and reaction with rain water are major contributors to acid rain.

**Which of the statements given above is/are correct?**

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

**48. With reference to the food chains in ecosystem which of the following kinds of organisms is/are known as decomposer organism/organisms?**

1. Virus
2. Fungi
3. Bacteria

**Select the correct answer using the codes given below**

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

**49. Consider the following statements**

1. Omega-3 fatty acid causes significant lowering of high density lipoprotein.
2. High density lipoprotein increases the risk of myocardial infarction.

**Which of the statements given above is/are correct?**

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

**50. With reference to the composition of the blood, which of the following statements is/are correct?**

- (a) Blood cell together constitute 45 percent of the total blood volume called as packed cell volume or Haematocrit
- (b) Blood plasma accounts for about 55 percent of the total blood volume
- (c) Albumin is important for retaining water component in blood
- (d) Fibrinogen is the natural anticoagulant in the blood

**SPECIAL BATCHES STARTING ON.....**

SUBJECT	BATCH BY	STARTING ON
Economics	Nirav Sir	14 <sup>th</sup> January, 2019
CSAT	Arvind Sir	17 <sup>th</sup> January, 2019
Art and Culture	Nirav Sir	28 <sup>th</sup> January, 2019