A–5–X

Roll No. .....

Total No. of Questions : **40**] [Total No. of Printed Pages : **15**

10th ARF(SZ)JKUT2024–25

105–X

SCIENCE

Time : 3 Hours] **[Maximum Marks : 80**

Section–A 1 each

Note :– Q. Nos. **1** to **18** are very short answer type questions of 1 mark each.

1. Convex mirrors are commonly used as :

(A) Shaving mirror

(B) Rear-view mirror

(C) Headlight mirror

(D) All of these

2. When a fine beam of sunlight enters a smoke filled room through a small hole, the phenomenon is known as :

(A) Reflection of light

(B) Refraction of light

(C) Tyndall effect

(D) None of these

3. The common refractive defects of vision include Myopia, Hypermatropia and Presbyopia. Choose the correct match :

(A) Myopia—Farsightedness, Hypermatropia—Age related farsightedness, Presbyopia—Shortsightedness

(B) Myopia—Shortsightedness, Hypermatropia—Age related forsightedness, Presbyopia—Farsightedness

(C) Myopia—Shortsightedness, Hypermatropia—Farsightedness, Presbyopia—Age related farsightedness

(D) None of these match is correct

4. For flow of charges in a conducting metallic wire, the electrons move only if there is a difference of electric pressure, called the :

(A) Potential difference

(B) Resistance

(C) Power

(D) Both (A) and (B)

5. Which property of a proton can change while it moves freely in a magnetic field ?

(A) Mass and speed

(B) Speed and velocity

(C) Mass and momentum

(D) Velocity and momentum

6. A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each :

(A) Two revolutions

(B) One revolution

(C) Half revolution

(D) One-fourth revolution

7. $NaCl + AgNO_3 \longrightarrow AgCl + NaNO_3$

The above reaction is a :

(A) Displacement reaction

(B) Double displacement reaction

(C) Combination reaction

(D) None of these

8. Metals can be beaten into thin sheets. This property is called :

(A) Metallic luster

(B) Malleability

(C) Ductility

(D) Conductivity

9. Which of the following methods is suitable for preventing an iron frying pan from rusting ?

(A) Applying grease

(B) Applying paint

(C) Applying coating of zinc

(D) All of these

10. The leaves of Nettle have stinging hair, which cause painful stings when touched accidently. This is due to presence of :

(A) Methanoic acid

(B) Oxalic acid

(C) Citric acid

(D) Carbonic acid

11. Which of the following types of medicine is used for treating acidity in stomach ?

(A) Antibiotic

(B) Antacid

(C) Analgesic

(D) Antiseptic

12. Autotrophic nutrition involves :

(A) Intake of simple inorganic material from the environment

(B) Using external energy source like the sun

(C) Intake of complex material prepared by other organisms

(D) Both (A) and (B)

13. Which plant hormone inhibits (stops) growth in plants ?

(A) Cytokinin

(B) Auxin

(C) Abscisic acid

(D) Gibberellins

14. An example of homologous organ is :

(A) Our arm and a dog's forearm

(B) Our teeth arid and elephant's tusks

(C) Potato and runners of grass

(D) All of these

15. The use of which chemical has endangered the ozone layer ?

(A) Pesticides

(B) CFCs

(C) Insecticides

(D) None of these

Note :- From Q. Nos. **16** to **18**, two statements (Assertion–A and Reason–R) are given. Select the correct statement/answer to these questions from the codes A, B, C and D as given below :

Codes :

(A) When A and R are true and R is the correct explanation of A.

(B) When A and R are true but R is not the correct explanation of A.

(C) When A is true but R is false.

(D) When A is false but R is true.

16. **Assertion (A)** : The two characteristic features seen in carbon, that is tetravalency and catenation.

Reason (R) : Carbon atom has four valence electrons in its outermost shell which makes it possible to form large number of compounds.

17. **Assertion (A)** : Pollen grains from the carpel stick to the stigma of stamen.

Reason (R) : The fertilized egg cells grow inside the ovules and become seeds.

18. **Assertion (A)** : Decomposers act as cleaning agents of the environment.

Reason (R) : The decomposers recycle waste material in the hydrosphere.

Section–B

2 each

Note :– There will be *ten* questions in this Section (Q. Nos. **19** to **28**) each of 2 marks.

19. A concave mirror produces three times magnified real image of an object placed 10 cms in front of it. Where is the image located ?

20. State and explain Ohm's law. Define resistance.

21. State the factors on which the strength of magnetic field produced by a current carrying solenoid depend.

22. Why does the colour of copper sulphate solution change when an iron nail is dipped in it ?

23. Name the following two compounds of carbon :

(i) $CH_3—CH_2—Br$

(ii) $CH_3—CH_2—OH$

24. Explain the meanings of malleable and ductile.

25. Write two differences between autotrophic and heterotrophic nutrition.

26. Write down two differences between reflex action and walking.

27. Why is DNA copying an essential part of the process of reproduction ?

28. Why are the traits acquired during the lifetime of an individual not inherited ?

Section–C

3 each

Note :– In this Section from Q. Nos. **29** to **37**, there will be *nine* questions with internal choice, each of 3 marks.

29. Draw the three ray diagrams for the correction of hypermatropic eye.

Or

(i) What is the far point and near point of the human eye with normal vision ?

(ii) What is meant by power of accommodation of the eye ?

30. Will current flow more easily through a thick wire or a thin wire of the same material, when connected to the same source ? Give reasons in support of your answer.

Or

The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4 A from the source. What current will the heater draw if the potential difference is increased to 120 V ?

11. (i) What is Right hand thumb rule ?

(ii) Draw magnetic field lines around a bar magnet.

Or

(i) What is the function of an earth wire ?

(ii) When does an electric short circuit occur ?

Write the balanced equation for the following reactions :

(a) Hydrogen + Chlorine ⟶ Hydrogen chloride

(b) Barium chloride + Aluminium sulphate ⟶ Barium sulphate + Aluminium chloride

(c) Sodium + Water ⟶ Sodium hydroxide + Hydrogen

Or

Describe Oxidation and Reduction reactions with examples.

33. Write down a note on Aqua Regia.

Or

Write down *three* properties of ionic compounds.

34. What is an alkali ? Write down *two* properties of alkali.

Or

Write down *three* uses of Washing Soda.

35. Write down the names of different parts of human brain. Draw the labelled diagram of human brain.

Or

Write down the functions of the following human hormones :

(i) Thyroxin

(ii) Adrenaline

36. What is the importance of DNA copying in Reproduction ?

Or

What are the different methods of contraception ?

37. What is Biological Magnification ? Will the levels of this magnification be different at different levels of the ecosystem ?

Or

Why is the damage to the ozone layer a cause for concern ? What steps are being taken to limit this damage ?

Section–D

5 each

Note :– In this Section from Q. Nos. **38** to **40**, there will be *three* long answer type questions with internal choice, each of 5 marks.

38. An object 5 cm in length is held 25 cm away from a converging lens of focal length 10 cm. Draw the ray diagram and find the position, size and nature of the image formed.

Or

Describe the mirror formula and magnification in spherical mirrors.

39. (i) Explain the mechanism of clearing action of soaps.

(ii) Explain the formation of scum when hard water is treated with soap.

Or

How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties ?

40. (i) What is the role of saliva in the digestion of food ?

(ii) How are fats digested in our body ?

Or

(i) How is oxygen and carbon dioxide transported in human body ?

(ii) What would be the consequences of a deficiency of haemoglobin in our bodies ?