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Question Paper

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A–5–X

Roll No.....

Total No. of Questions : **36]**

[Total No. of Printed Pages : **16**

XARJKUT23

9305–X

SCIENCE

Time : 3 Hours]

[Maximum Marks : 80

General Instructions :–

(a) This question paper has four Sections–A, B, C and D. There are thirty six questions in the question paper and all questions are compulsory.

(b) Section–A (Q. Nos. **1** to **20**) all questions and parts thereof are of 1 mark each. These questions contain multiple choice questions, very short answer type questions and assertions-reason type questions. Answer to these should be given in one word or one sentence.

(c) Section–B (Q. Nos. **21** to **26**) are short answer type questions carrying 2 marks each.

(d) Section–C (Q. Nos. **27** to **33**) carry 3 marks each.

(e) Section–D (Q. Nos. **34** to **36**) are long answer type questions carrying 5 marks each.

(f) There is no overall choice. However internal choices have been provided in some questions. A student has to attempt only *one* of the alternatives in such questions.

(g) Wherever necessary, neat and properly labelled diagrams should be drawn.

Section–A

1. Which type of mirror could be used as a shaving mirror ?

2. Name the phenomenon due to which a swimming pool appears less deep than it really is.

3. Which type of lenses are thinner in the middle than at the edges ?

Or

The power of a lens is +2.5 D, what kind of lens it is and what is its focal length ?

4. Which of the following colour of white light has the least wavelength ?

(A) Red

(B) Orange

(C) Violet

(D) Blue

5. Of what substance is the fuse wire made ?

6. Out of an A.C. generator and a D.C. generator, which one uses slip rings ?

7. The Newlands law of octaves for the classification of elements was found to be applicable only upto the element :

(A) Potassium

(B) Calcium

(C) Cobalt

(D) Phosphorus

8. What is the common name of methanol ?

Or

Name the product when hydrogen is added to ethene.

9. A covalent bond molecule having a double bond between its is :

(A) Hydrogen

(B) Oxygen

(C) Water

(D) Ammonia

10. Bee stings can be treated with :

(A) Vinegar

(B) Potassium Hydroxide

(C) Sodium Hydrogen Carbonate

(D) Lemon juice

11. Name *one* organism which can live without oxygen.

12. What is the other name of food pipe ?

13. What are the female sex cells in humans called ?

From question Nos. **14** to **16**, two statements (Assertion–A and Reason–R) are given. Select the correct answer from codes A, B, C and D as given below :

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

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

(C) A is true but R is false.

(D) A is false but R is true.

14. **Assertion (A) :** Spores are unicellular bodies.

Reason (R) : The parent body simply breaks up into smaller pieces on maturation.

15. **Assertion (A)** : Natural resources need to be used carefully.

Reason (R) : Resources are finite in supply and human population in tremendously increasing.

16. **Assertion (A)** : The sex of a child is determined by the mother.

Reason (R) : Humans have two types of chromosomes : XX and XY.

17. Read the following passage and answer any *four* questions :

All the electrical heating appliances have a heating element which helps in converting most of electrical energy into heat energy.

(i) The elements of electrical heating devices are usually made of :

(A) Tungsten

(B) Bronze

(C) Nichrome

(D) Argon

(ii) Which of the following characteristics is not suitable for a fuse wire ?

(A) Thin and short

(B) Thick and short

(C) Low melting point.

(D) Higher resistance

(iii) The heat produced by passing an electric current through a fixed resistor is proportional to the square of :

(A) Resistance of wire

(B) Current

(C) Temperature of resistor

(D) Time for which current is passed

(iv) If the current flowing through a fixed resistor is halved, the heat produced in it will become :

(A) Double

(B) One half

(C) One fourth

(D) Four times

(v) An electric fuse works on the :

(A) Chemical effect of current

(B) Magnetic effect of current

(C) Lighting effect of current

(D) Heating effect of current

18. Read the following passage and answer any *four* questions :

An acid is a substance which dissociates on dissolving in water. To test for acids, indicators are used.

(i) The indicators which turn red in acid solution are :

(A) Turmeric and litmus

(B) Phenolphthalein and litmus BR

(C) Litmus and methyl orange

(D) Phenolphthalein and methyl orange

(ii) The property which is common between vinegar and curd is that they :

(A) have sweet taste

(B) are tasteless

(C) have bitter taste

(D) have sour taste

(iii) The indicator which produces a pink colour in an alkaline solution is :

(A) Methyl orange

(B) Turmeric powder

(C) Phenolphthalein

(D) Litmus paper

(iv) One of the following is not an organic acid. This is :

(A) Ethanoic acid

(B) Formic acid

(C) Citric acid

(D) Carbonic acid

(v) The property which is not shown by acid is :

(A) they have sour taste (B) they feel soapy

(C) they turn litmus red (D) their pH is < 7

19. Read the following passage and answer any *four* questions :

Both plants and animals react (respond) to various stimuli around them but the method is not similar in plants and animals. The control and coordination in higher animals takes place through nervous system.

(i) Which of the following helps in maintaining posture and balance of the human body ?

(A) Cerebellum (B) Cerebrum

(C) Medulla (D) Pons

(ii) The number of pairs of nerves which arise from the spinal cord is :

(A) 21 (B) 41

(C) 31 (D) 51

(iii) The spinal cord originates from :

(A) Cerebrum (B) Cerebellum

(C) Medulla (D) Pons

(iv) The involuntary actions in the body are controlled by :

(A) Medulla in forebrain (B) Medulla in hindbrain

(C) Medulla in spinal cord (D) Medulla in mid brain

(v) Cerebellum, medulla and pons are the parts of :

(A) midbrain (B) hindbrain

(C) forebrain (D) spinal cord

20. Read the following passage and answer any *four* questions :

Food contains energy and this energy can be transferred from one organism to other through food chains :

(i) Which of the following constitutes a food chain ?

(A) Grass, Wheat and Mango (B) Goat, Cow and Elephant

(C) Grass, Goat and Human (D) Grass, Fish and Goat

(ii) In a food chain, the initial organism is usually :

(A) Photosynthetic (B) Herbivore

(C) Saprophytic (D) Parasitic

(iii) In a food chain, the third trophic level is always occupied by :

(A) Carnivores (B) Decomposers

(C) Herbivores (D) Producers

(iv) One of the following is not a consumer this one is :

(A) Giraffe (B) Antelope

(C) Algae (D) Alligator

(v) In the food chain comprising of a snake, grass, insect and frog, the secondary consumer is :

(A) Insect (B) Snake

(C) Frog (D) Grass

Section–B

21. There are two types of light sensitive cells in the human eye :

(i) Where are they found ?

(ii) What is each type called ?

Or

Make the diagram to explain refraction and dispersion.

22. Why do stars twinkle on a clear night ?

23. Two resistors with resistances 2Ω and 4Ω respectively are to be connected to a battery of e.m.f. 6 V so as to obtain maximum current flowing. Find the current in that case.

Or

Find the energy transferred by a 100 W electric bulb in 1 minute.

24. What is Magnetic field ? State any *two* properties of magnetic field lines.

25. What do you understand by endothermic reaction ? Give *one* example.

26. What is Corrosion ? Name any *two* metals which do not corrode easily.

Section–C

27. Why are fossil fuels classified as non-renewable sources of energy ?

Or

What is Biomass ? Give *three* examples of it.

28. What is decomposition reaction ? Give *two* examples of decomposition reaction.

29. How does the size of atom generally vary in going from left to right in a period of the periodic table ? Why does it vary this way ?

30. What is the difference between a mineral and an ore ? Name *one* ore of sodium. Write the chemical formula of sodium compound present in this ore.

31. Explain Vegetative propagation with the help of *two* examples. List *two* advantages of it.

32. What is meant by acquired and inherited traits ? Explain with *one* example each.

33. Why should we conserve forests and wildlife ?

Section–D

34. (a) Construct a ray diagram to illustrate the formation of a virtual image using :

(i) a converging lens,

(ii) a diverging lens

(b) What is the difference between the two images formed above ?

Or

(a) State *three* characteristics of the image formed by a convex mirror.

(b) An object 1 cm tall is placed 30 cm in front of a convex mirror of focal length 20 cm. Find the size and position of the image formed by the convex mirror.

35. (a) Give the molecular formula of one homologue of each of the following :

(i) C_3H_6

(ii) C_2H_6

(iii) C_2H_2

(b) What is the difference in the molecular mass of any *two* adjacent homologues ?

(c) By how many carbon atoms and hydrogen atoms do any *two* adjacent homologues differ ?

Or

(a) Explain the term 'isomers'. Give an example of isomers.

(b) Write the following :

(i) Structural formula

(ii) Electron dot structure of any *one* isomer of C_7H_{16}.

(c) How many isomers of the following hydrocarbons are possible ?

(i) C_3H_8

(ii) C_4H_{10}

(iii) C_5H_{10}

(iv) C_6H_{14}

36. (a) Define Nutrition. Why is nutrition necessary for an organism ?

(b) What are different modes of nutrition ? Explain each mode of nutrition with example.

Or

(a) Name the various organs of the human excretory system and draw the diagram.

(b) What is the function of excretory system in humans ?

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