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Half-Yearly Examination - 2022
SCIENCE

Time : 2.30 hrs.

Reg. No. ☐☐☐☐☐☐☐

Max. Marks : 75

PART - I

I. **Choose the correct answer**   5 x 1 = 5

1. The eye defect 'presbyopia' can be corrected by
    a) convex lens b) concave lens c) convex mirror d) bifocal lens

2. SI unit of resistance is............
    a) mho b) joule c) ohm d) ohm meter

3. ....aprons are used to protect us from gamma radiations.
    a) Lead oxide b) Iron c) Lead d) Aluminium

4. 1 mole of any substance contains........molecules.
    a) 6.023×10^{23} b) 6.023×10^{-23} c) 3.0115×10^{23} d) 12.046×10^{23}

5. Which of the following is the universal solvent?
    a) Acetone b) Benzene c) Water d) Alcohol

6. Which one of the following is used to cure wound?
    a) Hydrochloric acid b) Hydrogen peroxide c) Ammonium chloride d) All the above

7. ....is ATP factory of the cells.
    a) chloroplast b) cytoplasm c) mitochondria d) nucleus

8. Water which is absorbed by roots is transported to aerial parts of the plant through
    a) cortex b) epidermis c) phloem d) xylem

9. The hormone which has positive effect on apical dominance is
    a) cytokinin b) auxin d) gibberellin d) ethylene

10. The best way of direct dating fossils of recent origin is by
    a) radio carbon method b) uranium lead method c) potassium - argon method d) both (a) and (b)

11. Excessive consumption of alcohol leads to
    a) loss of memory b) cirrhosis of liver c) state of hallucination d) supression of brain function

12. All files are stored in...........
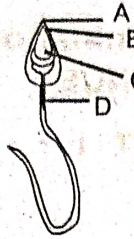   a) folder b) box c) pai d) scanner

PART - II

II. **Answer any 7 of the following. (Question number 22 is compulsory)**   7 x 2 = 14

13. Why a spanner with a long handle is preferred to tighten screws in heavy vehicles?

14. State Boyle's law.

15. True or false (If false give the correct statement)
     a) Ionic radius increases across the period from left to right.
     b) In a solution the component which is present in lesser amount is called solvent.

16. Fill in the blanks.
     a) The chemical name of rust is........... b) 100% pure ethonol is called..........

17. Ordinary soap cannot be used in hard water. Why?

18. Match the following.

     1. Brain   -   a) pleura
     2. Kidney -   b) capsule
     3. Heart   -   c) meninges

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4. Lungs   -   d) Pericardium

19. Draw the label the parts of sperm cell.

20. Name the types of stem cells.
21. What are the advantages of practising exercise in daily life?
22. Three resistors of resistances 5 ohm, 3 ohm, and 2 ohm are connected in series with 10V battery. Calculate their effective resistance and the current flowing through the circuit.

PART - III

III. Answer any 7 of the following. (Question number 32 is compulsory)   7 x 4 = 28

23. Differentiate convex lens and concave lens.
24. a) What is meant by electric current. b) An alloy of nickel and chromium is used as the heating element. Why?
25. What is a nuclear reactor? List out the essential parts of a nuclear reactor.
26. a) Identify the bond between H and F in HF molecule.
    b) What property forms the basis of identification?
    c) How does the property vary in periods and in groups?
27. Differentiate reversible and irreversible reaction.
28. a) How does leach suck blood from the host?
    b) How does locomotion takes place in leech?
29. a) Name the gaseous plant hormone. Describe its three different actions in plants.
    b) Which hormone is known as stress hormone in plants? Why?
30. a) Define Palaeontology?
    b) Which organism is considered to be the fossil bird? Why is the bird considered to be a connective link?
31. Enumerate the functions of forest.
32. Calculate the number of moles in a) 27 g of Al b) 1.51×10^{23} molecules in NH_4Cl.

PART - IV

Answer all the questions.

33. a) i) State the universal law of gravitation and derive its mathematical expression.
    ii) What are the causes of "Myopia". (OR)
    b) i) List the merits of LED.
    ii) Write any three features of Natural and artificial radio activity.
34. a) i) What is rust? Give the equation for formation of rust.
    ii) In what way hygroscopic substances differ from delinquescent substances. (OR)
    b) i) List out the factors influencing the rate of a reaction.
    ii) What is called homologous series?
    iii) Give any three of its characteristics.
35. a) i) Name the three basic systems in flowering plants.
    ii) What is transpiration? Give the importance of transpiration. (OR)
    b) i) Draw and label the structure of a neuron.
    ii) What precautions can be taken for preventing heart disease?

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