SCIENCE SAMPLE PAPER # 1

Time Allowed : 3 hour and 15 minutes **Maximum Marks : 80**

GENERAL INSTRUCTIONS :

1. All questions are compulsory.
2. This question paper comprises of subject : Science
3. The Question paper contains Four Sections A, B, C and D.
4. Distribution of marks are mentioned along with the questions.
5. In this paper a total of 51 questions are given.

SECTION – A

1. Write the answer of the following questions (i-xviii). Each question carries 1 marks.

(i) The gap between two neurons is called a :
(1) Dendrite (2) Synapse (3) Axon (4) Impulse

(ii) The brain is responsible for:
(1) Thinking (2) Regulating the heartbeat
(3) Balancing the body (4) All of the above

(iii) In a flower, the parts that produce male and female gametes are respectively:
(1) Sepal and anther (2) Filament and stigma
(3) Anther and ovary (4) Stamen and style

(iv) The correct sequence of reproductive stages seen in flowering plants is:]
(1) Gametes, zygote, embryo, seedling. (2) Zygote, gametes, embryo, seedling.
(3) Seedling, embryo, zygote, gametes. (4) Gametes, embryo, zygote, seedling.

(v) Which of the following are environment-friendly practices?
(1) Carrying cloth-bags to put purchases in while shopping.
(2) Switching off unnecessary light sand fans.
(3) Walking to school instead of getting your mother to drop you on her scooter.
(4) All of the above

(vi) Which of the following constitute a food-chain?
(1) Grass, wheat and mango. (2) Grass, goat and human.
(3) Goat, cow and elephant. (4) Grass, fish and goat.

(vii) In which of the following, the identity of initial substance remains unchanged?
(1) Curdling of milk
(2) Formation of crystals by process of crystallization
(3) Fermentation of grapes
(4) Digestion of food

(viii) Why is it important to balance a skeletal chemical equation?
(1) To verify the law of conservation of energy
(2) To verify the law of constant proportion.
(3) To verify the law of conservation of mass
(4) To verify the law of conservation of momentum

(ix) An element with atomic number…….will form a basic oxide.
(1) 7 (2, 5) (2) 17 (2, 8, 7) (3) 14 (2, 8, 4) (4) 11 (2, 8, 1)

(x) Which of the following oxide (s) is/are soluble in water to form alkalis?
(i) Na_2O (ii) SO_2 (iii) K_2O (iv) NO_2
(1) (i) and (iii) (2) Only (i) (3) (ii) and (iv) (4) Only (iii)

(xi) Which among the following are unsaturated hydrocarbons?
(i) $H_3C - CH_2 - CH_2 - CH_3$
(ii) $H_3C - C \equiv C - CH_3$
(iii) $H_3C - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_3$
(iv) $H_3C - \underset{\displaystyle CH_3}{\underset{|}{C}} = CH_3$
(1) (i) and (iii) (2) (ii) and (iii) (3) (ii) and (iv) (4) (iii) and (iv)

(xii) When ethanol reacts with sodium two products are formed? These products are:
(1) Sodium ethanoate and oxygen (2) Sodium ethanoate and hydrogen
(3) Sodium ethoxide and oxygen (4) Sodium ethoxide and hydrogen

(xiii) When light passes rough a prism, is deviates most in
(1) Red (2) Violet (3) Yellow (4) Orange

(xiv) Which of the following controls the amount of light entering the eye?
(1) Ciliary muscles (2) Lens (3) Iris (4) Cornea

(xv) How much energy does a 100 W electric bulb transfer in 1 minute ?
(1) 100 J (2) 600 J (3) 3600 J (4) 6000 J

(xvi) Which of the following can be used to determine direction of electric current in a circuit?
(1) Galvanometer (2) Ammeter (3) Voltmeter (4) All of the above

(xvii) At the center of solenoid Magnetic field lines:
(1) form concentric circles (2) are parallel to each other
(3) are perpendicular each other (4) both (1) and (2)

(xviii) Inside a Bar Magnet, In which direction do Magnetic field limes point
(1) North Pole to south Pole (2) South Pole to North Pole
(3) Not fox, can point t towards any Pole (4) both (1) and (2)

2. Fill in the blanks (i – vi). Each question carries 1 Mark.

(i) Bowman's capsule and renal tubule taken together make a _____.
(ii) Gums and resins are the _____ products of plants.
(iii) _____ is known as father of genetics.
(iv) The process through which characters pass from one generation to another is called _____ .
(v) Chemical formula of bleaching powder is ……..
(vi) Brine is a saturated solution of ……. .

3. Very short answer type of question[(i)-(xii)]. Each question carries 1 mark.

(i) Name the largest cell present in the human body.
(ii) Name two tissues that provide control and coordination in multicellular animals.
(iii) What will happen if we kill all the organisms in one trophic level?
(iv) What is allele ?
(v) What is a gene?
(vi) What is the color of litmus is a solution of ammonium hydroxide?
(vii) What are the constituents of solder alloy? Which property of solder makes it suitable for welding electrical wires?
(viii) What is a homologous series of carbon compounds?
(ix) Name the type of magnet with which the magnetic field pattern of a current – carrying solenoid resembles.
(x) Explain snell's law.
(xi) Draw ray diagrams to represent the nature, position and relative size of the image formed by a convex lens for the object placed : At $2F_1$.
(xii) Why two Magnetic field limes never intersect each other.

SECTION – B

Short Answer Type Questions (Q.4 to Q.13): Each question carries only 2 marks

4. What is the role of saliva in the digestion of food?
5. Which signals will get disrupted in case of a spinal cord injury?
6. What are the functions performed by the testis in human beings?
7. If all the waste we generate is biodegradable, will this have no impact on the environment?
8. " Dil. HCl is added to Zn granules." How will you prove that chemical change has taken place here? Support you response with two arguments.
9. Write down the balanced chemical equation for the following reactions and identify the type of reaction in each case.
(i) Nitrogen gas is treated with hydrogen gas to form ammonia gas.
(ii) Lead nitrate is heated strongly to form lead monoxide, nitrogen dioxide and oxygen.
(iii) A copper wire is dipped in silver nitrate solution and a shining deposit of silver is produced.
10. Define the focus of a concave mirror. If the radius of curvature of a convex mirror is 30cm, what would be its focal length?
11. A person wearing spectacles of power +0.5D. Which defect is he suffering from.
12. Define electric energy along with SI unit.
13. Write any two properties of magnetic field lines.

SECTION – C

Long Answer Type Questions (Q.14 to Q.17) internal choice has been provided in each questions. Each question carries only 3 marks.

14. How are the modes for reproduction diff event in unicellular and multi cellular organisms?

OR

What are the advantages of sexual reproduction over asexual reproduction?

15. A milkman adds a very small amount of baking soda to fresh milk.
(i) Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
(ii) Why does this milk take a long time to set as curd?

OR

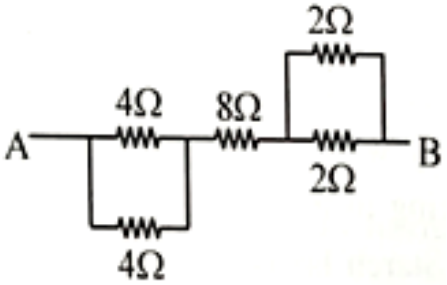
Give suitable reason for the following statements:
(i) We feel burning sensation in the stomach when we overeat.
(ii) The crystals of washing soda change to white powder on exposure to air.

16. Chlorine gas was prepared using electrolysis of brine solution. Write the chemical equation to represent the change. Identify the other products formed in the process and give one application of each.

OR

Indicate the oxidizing and reducing agent in the reaction.
$H_2S + Cl_2 \rightarrow 2HCl + S$

17. (i) Find equivalent resistances from A to B.



(ii) Define resistivity. State any two factors on which it depends

OR

(i) Write difference between kilowatt or kilowatt hour.
(ii) A bulb of power 40 watt is used of 8 hours a day. If each unit cost 8 Rs. when calculate electricity bill for 1 month in March.

SECTION – D

Essay Answer Type Questions (Q.18 to Q.20) internal choice has been provided in each questions. Each question carries only 4 marks.

18. How are fats digested in our bodies? Where does this process take place?

OR

Describe double circulation of blood in human beings. Why is it necessary?

19. (i) How many isomers are possible for the compound with the molecular formula C_4H_8? Draw the electron dot structure of branched chain isomer.
(ii) How will you prove the C_4H_8 and C_5H_{10} are homologous?

OR

A carbon compound 'A' having melting point 156 K and boiling point 351K, with molecular formula C_2H_6O is soluble in water in all proportions.
(i) Identify 'A' and draw its electron dot structure.
(ii) Give the molecular formulae of any two homologous of 'A'.

20. (A) A concave mirror forms a real image of an object placed at a distance of 30 cm from the mirror. The image is formed at a distance of 20 cm in front of the mirror. Calculate:
(i) Focal length of the mirror
(ii) Magnification
(iii) Nature and size of the image
(B) Draw a ray diagram to show the formation of an image by a convex mirror when the object is placed between the pole and infinity. Mention the nature of the image formed.

OR

(A) An object is placed at a distance of 24 cm from a convex lens of focal length 12 cm. Find:
(i) Position of the image
(ii) Magnification
(iii) Nature of the image
(B) Draw a ray diagram for the image formation by a concave lens when the object is placed at any finite distance.