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CBSE 2019 Sample Question Paper

SCIENCE

Time allowed: 3 hours**Maximum marks: 80****General Instructions:**

- (i) All questions are compulsory.
- (ii) This question paper contains 27 questions.
- (iii) Question number 1 to 2 in Section A are 1 mark questions. These are to be answered in one word or in one sentence.
- (iv) Question number 3 to 5 in Section A are 2 marks questions. These are to be answered in about 30 words each.
- (v) Question number 6 to 15 in Section A are 3 marks questions. These are to be answered in about 50 words each.
- (vi) Question number 16 to 21 in Section A are 5 marks questions. These are to be answered in about 70 words each.
- (vii) Question number 22 to 27 in Section B are based on practical skills. Each question is a 2 marks question. These are to be answered in brief.

Section A

1. Two resistances X and Y are connected turn by turn:

- (i) in parallel
- (ii) in series.

In which case the resultant resistance will be less than either of the individual resistances?

1

2. Name the structures through which amoeba capture food.

1

3. What is synapse? In a neuron cell how is an electrical impulse created and what is the role of synapse in this context?

2

4. An electric geyser has the ratings 2000 W, 220 V marked on it. What should be the minimum rating, in whole number, of a fuse wire that may be required for safe use with this geyser?

2

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5. While working in a chemistry laboratory, a student took some zinc granules in a test-tube and added a liquid X to it. A gas Y was produced. When a burning matchstick was brought near the mouth of the test-tube, the gas Y burns with a 'pop' sound, making a little explosion.
- What could the liquid X be ?
 - Name the gas Y.
 - State two properties of gas Y.
- 6.
- Explain any three directional movements in plants.
 - How brain and spinal cord are protected in human ?
 - Name the master gland present in the brain.
7. The far point of a myopic person is 80 cm in front of the eye. What is the nature and power of the lens required to correct the defect ?
- 8.
- Give the electronic configurations of sodium and chlorine.
 - Write the electron-dot structures for sodium and chlorine atoms.
 - Describe the formation of sodium chloride from sodium and chlorine by the transfer of electrons. What changes take place in the electronic configurations of sodium and chlorine during the formation of sodium chloride?
9. What is meant by warm-blooded and cold-blooded animals ? Explain.
10. Five solutions A, B, C, D and E have pH values of 5, 10, 2, 7 and 12 respectively. Which solution is :
- weakly alkaline ?
 - strongly alkaline ?
 - weakly acidic ?
 - strongly acidic ?
11. The electronic configurations of four elements A, B, C and D are as follows :
- | | |
|---|---------|
| A | 2, 8, 1 |
| B | 2, 8, 7 |
| C | 2, 8, 8 |
| D | 2, 4 |
- Which of these elements is a metal ?
 - Which of these elements are non-metals ?
 - Which two elements will combine to form an ionic bond ?
 - Which two elements will combine to form a covalent bond ?
 - Which element will form an anion of valency 1 ?
 - Which element is a noble gas ?



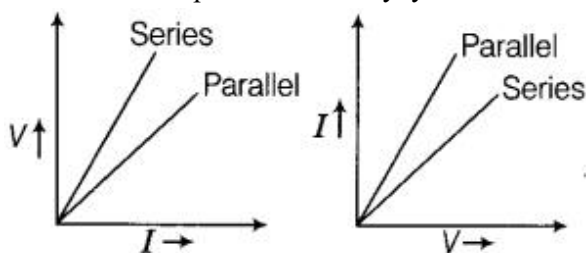
12. Explain the term rancidity. Write any two methods to prevent (or retard) the development of rancidity in fat and oil containing foods. Name another damaging effect caused by the same natural process which produces rancidity.
13. What is geothermal energy ? Explain how geothermal energy is used to generate electricity. State two advantages of geothermal energy.
14. What is an ammeter ? How is it connected in a circuit ? Draw a diagram to illustrate your answer. Also state why should the resistance of
- (i) an ammeter be very small?
 - (ii) a voltmeter be very large?
15. With the help of suitable examples explain natural selection.
- 16.
- (a) Draw the diagram of human heart and label the following:
 - (i) part which receive deoxygenated blood from vena cava.
 - (ii) part which send deoxygenated blood to lung through pulmonary artery.
 - (iii) part which receives oxygenated blood from lungs.
 - (iv) part which sends oxygenated blood to all parts of the body through aorta.
 - (b) What does the blood consist?
 - (c) Write two functions of blood.
- 17.
- (i) What is a solenoid? Draw a sketch to show the magnetic field pattern produced by a current-carrying solenoid
 - (ii) What is the shape of field lines inside a current-carrying solenoid? What does the pattern of field lines inside a current-carrying solenoid indicate?
 - (iii) What type of core should be put inside a current-carrying solenoid to make an electromagnet?
- 18.
- (i) Write the functional groups present in an aldehyde and carboxylic acid.
 - (ii) How would you distinguish between an alcohol and a carboxylic acid.
 - (iii) What happens when ethanoic acid is warmed with ethanol in the presence of a few drops of concentrated sulphuric acid? Write equation of the reaction involved.
 - (iv) What happens when a piece of sodium metal is added to ethanol? Write equation of the reaction which takes place.
 - (v) Describe how ethene can be prepared from ethanol? Give an equation of the reaction and state the conditions.



19. X, Y and Z are living organisms.
- Identify the group to which they belong on the basis of following features.
 - X — Microscopic, unicellular, prokaryotic.
 - Y — Microscopic, unicellular, eukaryotic, and shows locomotion with the help of pseudopodia/flagella.
 - Z — Multicellular, filamentous, eukaryotic, autotrophic and aquatic.
 - Which amongst the above is most advanced ?
 - Name one organism each belonging to the groups of X, Y and Z.
20. A student finds the writing on the blackboard as blurred and unclear when sitting on the last desk in the classroom. He, however, sees it clearly when sitting on the front desk at an approximate distance of 2m from the blackboard. Draw ray diagrams to illustrate the formation of image of the blackboard writing by his eye-lens when he is seated at the (i) last desk (ii) front desk. Name the kind of lens that would help him to see clearly even when he is seated at the last desk. Draw a ray diagram to illustrate how this lens helps him to see clearly.
21. Explain giving justification the trends in the following properties of elements, on moving from left to right in a period, in the Modern periodic table.
- Variation of valency
 - Change of atomic radius
 - Metallic to non-metallic character
 - Electronegative character
 - Nature of oxides.

Section B

22. Draw a labelled diagram of the experimental set up for the study of liberation of carbon dioxide gas during respiration.
23. Two students perform the experiments on series and parallel combinations of two given resistors R_1 and R_2 and plot the given V–I graphs. Which of the graphs is (are) correctly labelled in terms of the words 'series' and 'parallel'? Justify your answer.



24. An organic compound $C_2H_4O_2$ is taken in a test-tube and a pinch of baking soda is added to it. A gas is evolved which turns lime water milky.
- Name the gas evolved.
 - Name the functional group present in the organic compound.
 - Write the name and formula of the organic compound.

25. A student performs an experiment to study the magnetic effect of current around a current carrying straight conductor. He reports that :
- (i) the direction of deflection of the north pole of a compass needle kept at a given point near the conductor remains unaffected even when the terminals of the battery sending current in the wire are interchanged.
 - (ii) for a given battery, the degree of deflection of a N-pole decreases when the compass is kept at a point farther away from the conductor.
- Which of the above observations of the student is incorrect and why ?
26. A student was given a white powder and asked to study the action of water on it. When the student added some water to this white powder, it set into a hard mass in about half an hour.
- (a) What is the common name and chemical formula of white powder ?
 - (b) Name its two uses.
27. A student was told that a particular hormone requires iodine for its synthesis.
- (a) Name the endocrine gland which secretes this hormone.
 - (b) State the location of this endocrine gland in the human body.

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