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SET A



INDIAN SCHOOL MUSCAT  
FIRST PRELIMINARY EXAMINATION  
SCIENCE

CLASS: X  
07.01.2019

Sub. Code: 086

Time Allotted: 3 Hrs  
Max. Marks: 80

**General Instructions:**

- (i) The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.  
(ii) All questions are compulsory.  
(iii) Internal choice is given in sections B, C, D and E.  
(iv) Question numbers 1 and 2 in Section-A are one mark questions. They are to be answered in one word or in one sentence.  
(v) Question numbers 3 to 5 in Section- B are two marks questions. These are to be answered in about 30 words each.  
(vi) Question numbers 6 to 15 in Section-C are three marks questions. These are to be answered in about 50 words each.  
(vii) Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.  
(viii) Question numbers 22 to 27 in Section- E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

**SECTION A**

1. Why reproduction is considered to be an essential phenomenon in organisms? 1  
2. What is Ganga action plan? 1

**SECTION B**

3. i) What is meant by water harvesting? 2  
ii) Write two advantages of storing water in the ground.  
4. Compare and contrast bio-mass and hydroelectricity as a source of energy 2

**OR**

- What are the four characteristics of a good source of energy?  
5. State the difference between acquired trait and inherited trait. 2

**SECTION C**

6. (a) Why tungsten is used in making filament of an electric lamp? 3

- b) Calculate which of the given electric appliance uses more energy, a 250 W refrigerator in 1 hr, or a 1200 W toaster in 10 minutes?
7. (a) Define absolute refractive index. 3  
 (b) The speed of light in an unknown medium is measured to be  $2.76 \times 10^8$  m/s. Speed of light in vacuum is  $3 \times 10^8$  m/s. What is the refractive index of the medium?
8. (a) Draw a neat diagram showing how a magnetic field is produced around a current carrying circular loop. 3  
 (b) What is the working principle of (i) electric motor (ii) electric generator?

**OR**

- (a) Describe Oersted's experiment with the help of a neat diagram.  
 (b) State the rule which determines the direction of magnetic field thus produced.
9. An object is placed at a distance of 15 cm from a convex mirror of focal length 10 cm. Find the position and nature of the image. Also draw the respective ray diagram. 3
10. With reference to electrolytic refining of impure copper, answer the following: 3  
 i) What is the electrolyte used?  
 ii) Name the anode and cathode.  
 iii) What happens when electric current is passed through the electrolyte?
11. A few crystals of  $\text{FeSO}_4$  are heated in a boiling tube. 3  
 i) State the colour change that happens during the heating.  
 ii) Name the gases produced during heating.  
 iii) Give the balanced chemical equation for the reaction.

**OR**

- i) What are electrovalent compounds? Write two properties of such compounds.  
 ii) Give the electron dot formula of magnesium chloride ( $\text{MgCl}_2$ ).
12. i) Draw & name the isomers of butane. 3  
 ii) Write the formula & name of a compound having the functional group:  
 a)  $\text{—CHO}$     b)  $\text{—COOH}$     c)  $\text{—CO—}$
13. The genotype of a pea plant producing violet flower is denoted by VV and that of a pea plant producing white flower is denoted by vv. When are these two crossed? 3  
 a) What colour of the flower would you expect in the F1 progeny?  
 b) Give the percentage of violet flower plant if F1 plants are self pollinated?  
 c) In what ratio would you find the genotype of VV and Vv in the F2 progeny?

14. a) Give any two advantages of vegetative propagation. 3  
b) What are sexually transmitted diseases? Give examples for bacterial and viral diseases.

**OR**

- a) What are the functions performed by the testis in human beings?  
b) What is placenta? Write two functions of the same.
15. Mention the role of decomposers in an ecosystem. 3

**SECTION D**

16. (a) Explain why fuse wire is used as a safety device in an electrical circuit. 5  
(b) What is the principle behind the working of fuse wire?  
(c) With the help of a labelled diagram explain the working of a domestic electric circuit.

**OR**

- (a) Define electromagnetic induction.  
(b) Explain with the help of a labelled diagram how current is induced in a secondary coil due to the magnetic field generated in the primary coil.  
(c) State the rule that shows the direction of induced current.
17. (a) How does human eye adjust itself to deal with light of varying intensity? 5  
(b) What do you mean by Presbyopia?  
(c) What are the causes of Presbyopia and how can this defect of vision be corrected?  
(d) A person having myopic eye uses concave lens of focal length 40cm. What is the power of the lens?
18. a) The position of three elements A , B & C in the periodic table are given below. 5

Group 16	Group 17
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-----	A
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B	C

- i) State whether 'A' is a metal or non-metal.  
ii) State whether 'C' is more reactive or less reactive than 'A'.  
iii) Will 'C' be larger or smaller in size than 'B' and why?  
iv) Which type of ion will be formed by 'A'?
- b) Why are group 17 elements called halogens?  
c) Name three elements with filled outermost shell. Mention their group in the modern periodic table.

**OR**

- i) What are amphoteric oxides? Select such oxides amongst the following oxides:  
 $\text{Na}_2\text{O}$  ,  $\text{ZnO}$  ,  $\text{CO}_2$ ,  $\text{Al}_2\text{O}_3$  ,  $\text{K}_2\text{O}$
- ii) List any two chemical properties of acids with balanced equations.
- iii) Acids cannot be stored in metallic containers. Why?
19. i) What do you understand by a homologous series? Explain giving one example of a homologous series. 5
- ii) Give one example of a cyclic hydrocarbon with three double bonds & draw its structural formula.
- iii) Explain the terms : (a) Isomer (b) Functional group
20. a) Draw a neat diagram of a typical neuron and label any four parts. 5
- b) How are brain and spinal cord protected in our body?
- c) What are synapses?
21. a) Give reason for the following 5
- (i) Lung alveoli are covered with blood capillaries
- (ii) Wall of the trachea is supported with cartilaginous rings
- b) Due to some disease, acid secretion in the stomach is reduced in a man. How will this condition affect his digestion? Identify a secretion involved in digestion which is not an enzyme.
- c) What is the role of saliva in the digestion of food?

**OR**

- a) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide in man and label any four parts
- b) Mention the role of valves in the heart.
- c) Name the blood vessel that brings oxygenated blood to the heart.

### SECTION E

22. How many times will the equivalent resistance of two identical resistors be increased if the parallel arrangement is changed to series arrangement? 2
- OR**
- How you would connect three resistors, each of resistance 6 Ohm, so that the combination has a resistance of
- (i)  $9\ \Omega$ , (ii)  $4\ \Omega$
23. (a) Draw a neat labelled ray diagram showing the refraction of light through a glass prism. 2
- (b) What are the factors on which the angle of deviation depends?
24. When a metal 'X' is added to a salt solution of a metal 'Y', the following chemical reaction takes place. 2
- Metal 'X' + Salt solution of 'Y'  $\longrightarrow$  Salt solution of 'X' + metal 'Y'.

- i) Mention the inference you draw regarding the activity of metal 'X' & 'Y'
- ii) Name the type of the reaction.

**OR**

- i) List any two observations which you make when add a pinch of sodium hydrogen carbonate to ethanoic acid in a test tube.
- ii) What is the colour observed when a pH paper is dipped in lemon juice?

25. a) Write the types of reactions observed in the following cases. 2

- i) Adding water to quick lime.
  - ii) Heating of copper sulphate crystals.
  - iii) Mixing aqueous solutions of barium chloride & sodium sulphate.
- b) Name the acid present in vinegar solution.

26. Describe the mechanism of opening and closing of stomata. 2

27. Mention the observations of the process of binary fission in Amoeba 2

**OR**

A student observed a permanent slide showing asexual reproduction in yeast. Draw diagrams of the observation he must have made from the slide. Also name the process.

**End of the Question Paper**