Roll Number		

SET C

INDIAN SCHOOL MUSCAT
FIRST PRELIMINARY EXAMINATION
SCIENCE

CLASS: X Sub. Code: 086 Time Allotted: 3 Hrs

07.01.2019 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. Name the sex hormone secreted by male and female sex organs in human beings. 1

2. What is Ganga action plan? 1

SECTION B

3. List any two measures that you suggest for better management of water. 2

4. Explain how electrical energy is generated in a nuclear reactor 2

OR

What is a solar cell panel?

Mention one advantage and disadvantage of using solar cooker.

5. 1. Write any two factors that could lead to the rise of a new species. 2

2. Give an example of characteristics being used to determine how close two species are in evolutionary terms.

SECTION C

6. Draw a circuit diagram of an electric circuit containing a cell, a key, an ammeter, a resistor of 4Ω in series with a combination of two resistors (8Ω each) in parallel and a voltmeter across parallel combination. Each of them can withstand a maximum power of 32W without melting. Calculate the total current that flows through this circuit. 3

7. An object of height 12cm is placed before a concave mirror of focal length 20cm so that a real image is formed at a distance 50 cm from it. Find the position of the object. What will be the height of the image formed? Draw the respective ray diagram. 3

8. a) Describe with the help of a diagram, an activity to show that a straight conductor carrying current produces a magnetic field around it. 3
   b) Mention the rule which determines the direction of magnetic field thus produced.

OR

   a) Define electromagnetic induction.
   b) Explain with the help of a diagram how current is induced in a solenoid using bar magnet.

9. a) Draw a labelled ray diagram showing refraction of light through a rectangular glass slab. 3
   b) What are the factors on which lateral displacement depend?

10. a) Account for the following: 3
   i) Ionic compounds have high melting points.
   ii) Carbon cannot form C^{4+} or C^{4-} ions.
   b) What is an alloy? What are the components of
   i) stainless steel ii) solder

11. a) When is a chemical reaction categorised as a precipitation reaction? Explain with one example in the form of a balanced equation. 3
   b) Explain why white silver chloride turns grey when exposed to sunlight. Give balanced chemical equation for the reaction.

OR

   a) The pH values of four solutions A, B, C and D as determined by a student are 3, 7,12 and 8 respectively.
   i) Identify the most acidic and most basic solutions.
   ii) Arrange the above solutions in the decreasing order of the hydrogen ion concentration.
   b) What is the common name of (i) $NaHCO_3$ and (ii) $Na_2CO_3.10H_2O$

12. a) In the formation of compound between two elements A & B, A loses 2 electrons and B gains one electron. 3

i) What is the nature of chemical bond between A and B?

ii) Give the formula of the compound between A and B?

b) Explain why common salt being an ionic solid is unable to conduct electricity.

c) What happens when water is mixed with Plaster of Paris? Give the balanced equation for the reaction.

13. What can you as an individual do to reduce your consumption of the various natural resources? 3

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. a) How will you estimate the age of the fossils? 3

b) What is meant by evolution? Mention the tools which help in tracing evolutionary relationship in human being?

SECTION D

16. a) Name a device which converts mechanical energy into electrical energy. 5

b) Explain the principle and working of this device with the help of a labelled diagram.

OR

a) What is the function of earth wire?

b) Why is it necessary to earth metallic appliances?

c) With the help of a labelled diagram explain the working of a domestic electric circuit.

17. Shan needs a lens of power -4 D for correction of his vision. 5

a) Find the focal length of the lens and name the defect of vision.

b) What are the causes of this defect?

c) Also draw ray diagrams showing the (i) defected eye and (ii) correction for this defect.

18. a) State the modern periodic law. 5

b) The position of five elements in the modern periodic table are given below.

	Group 1	Group 2	Group 15	Group 16
Period 2		A		B
Period 3	C		D	E

i) What is the number of valence electrons in B?

ii) Which will have the smallest atomic radius?

iii) Which will be the most metallic?

iv) Which all can form basic oxides?

v) Which will show valency 3?

vi) Which will show the greatest tendency to gain electrons?

vii) What is the formula of compound between C and E?

OR

a) Give your reasons:

i) A tarnished copper vessel regains its shine when rubbed with lemon.

ii) An aqueous solution of salt is neutral but an aqueous solution of washing soda is basic.

iii) Rain water conducts electricity but distilled water does not.

b) Give the chemical name & formula of

i) Slaked lime ii) Quick lime

19. a) The molecular formula of two organic compounds are C_3H_6 & C_3H_8. 5

i) Which of the two is likely to show addition reaction and why?

ii) Write a chemical reaction to show an addition reaction.

iii) Draw the structural formula of C_3H_6.

b) Complete the following reactions:

i) $CH_3CH_2OH \xrightarrow{\text{Alkaline } KMnO_4 \text{ \& Heat}}$

ii) $CH_3COOH + CH_3CH_2OH \xrightarrow{\text{Acid}}$

20. a) Write any two differences between reflex action and walking. 5

b) Draw a neat diagram of reflex arc and label any four parts.

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. a) State Ohm's law. 2

b) Why is it advised not to allow the current to flow for a long time through a resistance wire connected in an electric circuit?

OR

a) Define S.I unit of current.

b) Two resistors having resistances 4 Ω and 6 Ω respectively are connected in a circuit. It was found that the total resistance in the circuit is less than 4 Ω. In what way are these resistors connected in the circuit?

Find the total resistance in such combination of resistors.

23. a) Draw a ray diagram showing the image formation by a convex lens when an object is placed beyond 2F. 2

b) Mention the position and nature of the image thus formed.

24. a) A metal 'X' when dipped in aqueous solution of aluminium sulphate, no reaction is observed whereas when it is dipped in aqueous solution of ferrous sulphate, the pale green solution turns colourless. Identify the metal 'X' with reason. 2

OR

a) Write two observations during the heating of copper sulphate crystals in a test tube.

b) Write the balanced equation for the reaction involved.

25. a) What is the colour of universal indicator in 2

i) distilled water?

ii) baking soda solution?

iii) vinegar solution?

iv) dilute HCl solution?

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

27. In the experimental set up on CO2 is released during respiration, if one forgets to keep the small test tube with KOH in the conical flask, How will the result vary? Give two points 2

OR

Write two precautions to be taken while identifying different parts of an embryo of the dicot seed.

End of the Question Paper