Roll Number		

SET C

INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION
SCIENCE

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

25.11.2018 | 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 respiratory pigment in human being. Where is this pigment found? 1

2. All information for our environment is detected by specialized tips of some nerve cells. Mention the name given to such tips and mention where they are located. 1

SECTION B

3. A white colored powder is used by doctors for supporting fractured bones. 2
   a) Write chemical name and formula of the powder.
   b) On mixing this powder with water, a hard solid mass is obtained.
   Write balanced chemical equation for the change.

4. Out of two solar cookers, one was covered with a plane glass plate and the other was left open. Which of the two solar cookers will be more efficient and why? 2

OR

How is biogas obtained from biomass? Why is biogas considered an ideal fuel? (Two points)

5. a) How does Mendel's monohybrid cross show that a trait is recessive? 2
   b) What would be the genotypic ratio in F_2 generation of monohybrid cross?

SECTION C

6. Explain how geothermal energy is harnessed and write one limitation and one advantage of the use of geothermal energy. 3

7. State Ohms law. What is the nature of graph between potential difference and current for a conductor? Name the physical quantity that can be obtained from this graph. 3

8. An object 3 cm high is held at a distance of 50 cm from a convex mirror of focal length 25 cm. Find the nature, position and size of the image. 3

OR

A convex lens produces an inverted image magnified three times of an object at a distance of 15 cm from it. Calculate the focal length of the lens.

9. Draw a ray diagram to show the formation of image of an object placed between $2F_1$ and F_1 of a convex lens. Write the nature, and position of the image. 3

10. (a) "Sodium hydrogen carbonate is a basic salt." Give reason. 3
(b) A student dropped a few pieces of marble in dilute HCl contained in a test tube. The evolved gas was passed through lime water.
    i) What change would be observed in lime water?
    ii) Write balanced chemical equation for the above change.

11. A trivalent metal X is used along with iron III oxide to join broken iron rails which is a highly exothermic reaction. 3
a) Identify the metal X and Name the reaction.
b) Write the balanced chemical equation for the reaction?
c) i) Name a metal which does not react with cold water but reacts with hot water.
   ii) Name a metal which neither reacts with cold nor with hot water but reacts with steam.

OR

Explain how the following metals are obtained from their compounds by reduction process:
a) Metal X which is low in reactivity series.
b) Metal Y which is in the middle of series.
c) Metal Z which is high in reactivity series.

12. a) Based on electronic configuration, how will you identify the first and the last element of a period. 3
b) "Hydrogen occupies a unique position in modern periodic table." Justify the statement.
c) Give two reasons for the late discovery of noble gases.

13. Distinguish between homologous organs and analogous organs. In which category would you place wing of a bird and wing of a bat? Justify your answer giving a suitable reason. 3

14. What is geotropism? Draw a labelled diagram of a potted plant showing positive geotropism and negative geotropism. 3

OR

What are acquired traits? Why these traits are genetically inherited over generation? Explain.

15. The genotype of a green stemmed tomato plant is denoted by "GG" and that of a purple stemmed tomato plant as "gg". When these two plants are crossed 3
    a) What colour of stem would you expect in their F_1 progeny

b) Give the percentage of purple stemmed plant if F_1 plants are self-pollinated.
In what ratio would you find the green and purple colour in the F_2 progeny

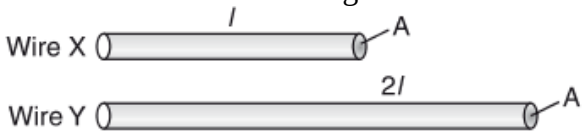
SECTION D

16. a) What is hypermetropia? 5
b) List two causes for the development of this defect.
c) With the help of a ray diagram show the defect of hypermetropia.
d) How it can be corrected?

OR

a) What is atmospheric refraction?
b) Use this phenomenon to explain: i) Twinkling of stars ii) Advance sunrise and delayed sunset.

17. a) Why does the cord of an electric heater not glow while the heating element does? 5
b) Out of the two wires X and Y which one has greater resistance? Justify your answer.



c) A copper wire has a resistance R. If the wire is doubled on itself by what factor does the resistance of the wire change?

18. In the following table, eight elements A, B, C, D, E, F, G and H of modern periodic table with the atomic numbers in parenthesis are given. 5

Period	Group 1	Group 2
2	A (3)	E (4)
3	B (11)	F (12)
4	C (19)	G (20)
5	D (37)	H (38)

On the basis of above table, answer the following questions:
a) Write the electronic configuration of F?
b) Mention the number of valence electrons and the number of shells in the atom of F.
c) Write the size of the atoms of E, F, G and H in decreasing order.
d) What happens to the reactivity of elements A, B, C and D as we move down the group.
e) Write the formula of the compound formed by the reaction of A with oxygen.

19. a) Give two differences between Roasting and calcination. 5
b) What is meant by refining of metals and concentration of the ore?
c) In the electrolytic refining of metal M, name the cathode, anode and the electrolyte.

20. a) List in tabular form the differences between aerobic respiration and anaerobic respiration. (any two points) 5
b) Why do we feel cramps in our muscles during sudden physical activity?
c) How is oxygen transported in our body which is taken from outside?

21. a) Differentiate between pepsin and amylase based on the organ where they are produced and their action. 5

b) Mention any two structural modification in the small intestine, which helps in absorption of digested food.
c) What is the role of mucus in the stomach?

OR

a) Draw a diagram of human excretory system and label kidney, ureters, urinary bladder and renal artery on it.
b) State in brief the function of i) renal artery ii) kidney iii) ureter iv) urinary bladder

SECTION E

22. Define principal focus of a convex lens. Using a ray diagram show the formation of principal focus for a convex lens. 2

23. In an experiment to study the relation between the potential difference across a resistor and the current through it a student recorded the following observations. 2

Potential difference, V (In volts)	1.0	2.2	3.0	4.0	6.4
Current, I (In amperes)	0.1	0.2	0.6	0.4	0.6

On examining the above observations, the teacher asked the students to reject one set of readings as the values were out of agreement with the rest. Which one of the above sets of readings can be rejected? Calculate the mean value of resistance of the resistor based on the remaining four sets of readings.

24. What do you observe when $FeSO_4$ crystals are heated? (2 observations) 2

OR

Give two precautions to be taken while carrying out a reaction between Quick lime and water.

25. A student added Zn granules to dil. HCl, a gas was evolved. What is the name and the nature of the gas and how can he test the gas? 2

26. A student is observing a permanent slide showing sequentially the different stages of asexual reproduction taking place in the yeast. Name the process and draw diagrams showing his correct observation in a proper sequence. 2

27. When a student observes a temporary mount of a petunia leaf under the microscope, he observes two types of cells. 2
a) Name these two types of cells
b) Give one point of difference between two cells which helped him to identify the cells.

OR

What happens to carbon dioxide given out by the germinating seeds from the experiment you have studied on respiration?

End of the Question Paper