

Roll Number		
-------------	--	--

SET B



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. Name the sex hormone secreted by male and female sex organs in human beings. 1
- 2. Write any two harmful effects of ozone depletion. 1

SECTION B

- 3. “Rain water harvesting is essential”. Justify this statement giving two reasons. 2
 - 4. Give two advantages and disadvantages of harnessing wind energy to produce electricity. 2
- OR**
- 5. Compare and contrast fossil fuel and energy obtained from the Sun as direct sources of energy.
 - a) Write any two factors could lead to the rise of a new species. 2
 - b) Give an example of characteristics being used to determine how close two species are in evolutionary terms.

SECTION C

- 6. An object of height 6cm is placed at a distance of 20 cm from a concave lens of focal length 10cm. Find the position and size of the image. Also draw the respective ray diagram. 3

7. a) The refractive index of diamond is 2.42. What is the meaning of this statement? 3
b) What is the speed of light in water whose refractive index is 1.33. Given that the speed of light in vacuum is 3×10^8 m/s?
8. a) What is a solenoid? 3
b) Explain with the help of a diagram how current is induced in a solenoid using a bar magnet.

OR

- a) Describe with the help of a diagram an activity to show that a magnetic field is produced around a current carrying circular loop.
b) How can we increase the strength of magnetic field thus produced?
9. a) Derive an expression for effective resistance when three resistors are connected in parallel. 3
b) What are the advantages of parallel connection over series connection in a domestic electric circuit.
10. a) Complete the equations. 3
i) $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{NaOH} \longrightarrow$
ii) $\text{CH}_4 + 2\text{O}_2 \longrightarrow$
b) Define the terms: i) catination ii) co-valent bond.
11. a) State Modern periodic law. 3
b) What is meant by periodicity in properties of elements with reference to the periodic table?
c) Why do all elements in the same group have similar properties?

OR

- a) The reaction of a metal 'X' with ferric oxide is highly exothermic. The metal 'X' is obtained from its ore by electrolytic reduction. Identify 'X' and write its reaction with ferric oxide. What is the most common use of this reaction?
b) Explain chlor-alkali process?
12. Part of periodic table is given below where atomic numbers of elements are given in bracket. 3
Li(3) Be(4)
Na(11) Mg(12)
K(19) Ca(20)
Rb(37) Sr(38)
- a) Give the electronic configuration of K.
b) What is the formula of the compound between Ca & Hydrogen?
c) Arrange the elements Be, Mg, Ca & Sr in the decreasing order of reactivity.
d) Which is bigger in size Na or Mg & why?

13. 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?
14. a) How is the process of pollination different from Fertilization? Name the two types of pollination. 3
b) Why is DNA copying an essential part of the process of reproduction?

OR

- a) Mention the role of seminal vesicles and prostate gland?
b) Draw a diagram of the longitudinal section of a typical flower and label the parts given below
i) Male reproductive system
ii) Female germ cell
iii) Sepals
iv) Stigma
15. What can you as an individual do to reduce your consumption of the various natural resources? 3

SECTION D

16. a) Explain with the help of a labelled diagram the force acting on a metal rod placed in a magnetic field. 5
b) Name the rule that shows the direction of force.
c) State the rule which shows the direction of force acting on this current carrying conductor.

OR

- a) Name the device that converts electrical energy into mechanical energy.
b) Explain the principle and working of this device with the help of a labelled diagram.
17. a) Explain the formation of rainbow in the sky with the help of a ray diagram. 5
b) List the three phenomena involved the formation of rainbow in proper sequence.
c) Explain why stars appear to twinkle in the sky but planets do not.
18. a) State any two limitations of Mendeleev's classification of elements. 5
b) How many groups & periods are present in modern periodic table?
c) The element [X] has atomic number 17. Write its group and period number in the modern periodic table.
d) Metallic character increases down a group. Why?

OR

a) Giving one example each, explain how the following metals are obtained from their compounds by the process of reduction.

i) Metal 'A' which is low in activity series of metals.

ii) Metal 'B' which is in the middle of the activity series of metals.

b) i) What is meant by refining of metals?

ii) In the electrolytic refining of metal 'M', name the cathode, anode and electrolyte.

19. a) Draw the electron dot structure of methane molecule. 5

b) Write the name of the following compounds:

i) CH_3COCH_3 ii) C_2H_2

c) Name the carbon compound which when heated with conc. H_2SO_4 produces ethane gas. Write the chemical equation for the reaction. State the role of conc. H_2SO_4 in the reaction.

d) Soaps do not work well with hard water. Why?

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) List any two characteristics of alveoli to facilitate the exchange of gases 5

b) What are the four methods used by plants to get rid of excretory products?

c) What would be the consequences of a deficiency of haemoglobin in our body?

d) What is the role of mucus in the stomach?

OR

a) Draw a neat diagram of excretory system in human being and label the parts given below

i) Urethra ii) Vena cava iii) Urinary bladder iv) Kidney

b) State any two differences between aerobic respiration and anaerobic respiration.

SECTION E

22. In an electric circuit, a resistor of 5Ω resistance is connected to a battery of 10V using an ammeter and a plug key. In this circuit, another resistor of 3Ω resistance is connected in series with 5Ω resistor. Calculate the change in the total current flowing through the circuit? 2

OR

Among the following instruments:

Milliammeter A1 of least count 20 mA

Milliammeter A2 of least count 10 mA

Voltmeter V1 of least count 0.2 V

Voltmeter V2 least count 0.3 V

Which milliammeter and voltmeter would be selected for carrying out the experiment to determine the equivalent resistance of two resistors connected in series. Why?

23. The image formed by a spherical mirror when the object is placed between principal focal length and pole of the mirror is erect and magnified. Name the type of mirror. Draw a labelled ray diagram to support your answer. 2
24. When a student added zinc granules to dilute HCl, a colourless & odourless gas was evolved which was then tested with a burning match stick. What would be observed? 2

OR

Explain all your observations.

- a) Copper wire is kept in silver nitrate solution
b) Zn strip is kept in copper sulphate solution.

25. A student took 2ml of ethanoic acid in a test tube. He added a pinch of white powder 'X' in it and found that a gas 'Y' is released with effervescence. He also observed that the gas Y turned lime water milky. Based on his observation, answer the following: 2
- a) Give the names of X & Y.
b) Give the balanced equation for the reaction between ethanoic acid & X.
26. When observed under high power of the microscope, "chain of buds" is visible in the microscopic view. In which organism can it be observed? Define the process 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