

General Instructions:



INDIAN SCHOOL MUSCAT

Third Preliminary Examination

SCIENCE

CLASS: X

Sub.Code: 086

Time Allotted: 3 Hrs

12.02.2018

Max.Marks: 80

1. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
2. **All** questions are **compulsory**
3. **All** questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.
4. Question numbers **1 to 2** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**
5. Question numbers **3 to 5** in **Sections-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each
7. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **22 to 27** in **Section-B** are questions based on practical skills. Each question is of **two marks**.

SECTION A

- 1 What is 'blob' known as in Blob on a stick structures of *Rhizopus*? 1
- 2 Mention any one point of difference between Pepsin and Trypsin. 1
- 3 An element 'P' has atomic number 13. What would be its position in the modern periodic table? Write the formula of its oxide. 2
- 4 Write any two advantages and any two limitations of harnessing wind energy on a large scale. 2
- 5 How much current will an electric bulb draw from 220 V source if the resistance of the bulb is 1200 ohm? If in place of bulb, when a heater is used the current drawn is 2.2 A. Calculate the resistance of the heater. 2
- 6 An object of height 5 cm is placed perpendicular to the principal axis of a concave lens of focal length 10 cm.If the distance of the object from the lens is 20 cm, determine the position and magnification of the image. 3
- 7 (i) What is hypermetropia? 3

- (ii) Write the cause of hypermetropia?
- (iii) Draw the ray diagram showing how hypermetropia is corrected?
- 8 a) Do basic solutions also have H^+ (aq) ions? Then why are these basic? 3
- b) Which of the given salts have pH more than 7?
- i) washing soda ii) copper sulphate iii) sodium acetate iv) ammonium chloride
- c) A dry pellet of a common base reacts with HCl to form salt and water. Define the type of reaction involved.
- 9 a) State Modern Periodic law. 3
- b) Why did Mendeleev leave gaps in his periodic table?
- c) Two elements 'C' and 'D' belong to group 17 and group 16 respectively. Which has smaller atomic size? Why?
- 10 Plants absorb water from the soil. Root hairs help in this process. 3
- a) Name the structural components which help in the transport of water upwards.
- b) Explain the process and forces which help in the transport of water in tall trees from the roots to the tree tops.

OR

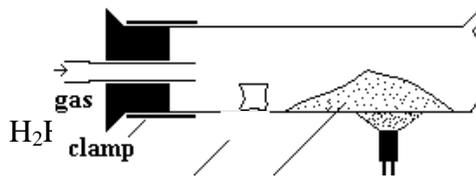
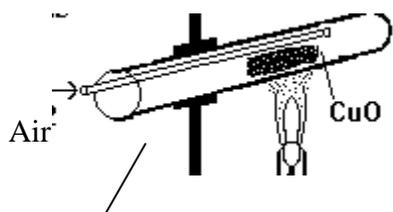
- i) In human excretory system
- a) Which part(s) produces urine.
- b) Where is urine stored?
- ii) Name the factors on which the amount of water reabsorbed along the tubular part of nephron depend on?
- iii) On what principle, artificial kidney is working?
- 11 Name the hormone secreted by a) Thyroid gland b) Pancreas c) ovary and also state one function of each. 3
- 12 Name the device that converts electrical energy into mechanical energy. Draw the labeled diagram and explain the principle involved in this device. 3

OR

- (i) How is an ammeter connected in an electric circuit? Give reason.
- (ii) List out advantages of parallel combination of appliances over series combination in domestic circuit.
- 13 Copper is used in the refining of copper from copper nitrate solution. 3
- a) Name the type of reaction and write the chemical equation involved.
- b) Can silver be used in the refining of copper from its nitrate? Justify your answer.

OR

A reddish brown powder 'Z' is heated in the presence of air in glass tube A.



Glass tube A

Glass tube B CuO

- a) Identify Z and the colour of the CuO formed in glass tube A.
- b) What type of reaction takes place in glass tube B? Write the chemical equation.
- 14 Distinguish between analogous organs and homologous organs. Identify the analogous and homologous organs amongst the following : 3
 Wings of an insect, wings of a bat, forelimbs of frog, forelimbs of human.
- 15 In a cross between plants with purple flowers and plants with white flowers the offsprings of F1 generation all had white flowers. When the F1 generation was self – crossed, it was observed in the F2 generation that out of 100, 75 flowers were white. Make a cross and answer the following: (a) What are the genotypes of the F2 progeny? (b) What is the ratio of White: Purple flowers in the F2 generation? 3
- 16 (i) With the help of an activity, explain the method of inducing electric current in a coil with a moving magnet. 5
 (ii) State the rule used to find the direction of electric current thus generated in the coil.
 (iii) Two circular coils P and Q are kept close to each other, of which coil P carries a current. What will you observe in Q if the current in coil P is changed?
- 17 A metal X is found in nature as XCO_3 . It is used in galvanizing Fe articles. 5
 a) Name the metal X.
 b) Explain how the metal X can be extracted from its carbonate ore.
 c) Describe an activity to show the necessary conditions needed for rusting.
- 18 (a) How is brain protected from injury and shock? b) Draw a diagram of a nerve cell and label any two parts in it. c) Name the part of neuron: 5
 (i) where information is acquired
 (ii) through which information travels as an electrical impulse.
- 19 Define principal focus for a convex mirror and a concave mirror. (2) 5
 Draw a ray diagram and also state the position, relative size and the nature of image formed by a concave mirror when the object is placed at the centre of curvature of the mirror. (3)
- 20 a) What is hydrogenation? Name two catalysts used in hydrogenation. 5

- b) What is its Industrial application?
c) Draw the electron dot structure of i) propane and ii) Carbondioxide.

OR

- a) Give any 2 differences between alkanes and alkynes.
b) Ice cream contains artificial flavours.
i) Name the compound used in these flavours?
ii) What happens when these compounds are hydrolysed with an alkali? Write the equation.

- 21 a) What is biodiversity? What will happen if biodiversity of an area is not preserved? Mention one effect of it. 5
b) List two main causes of the pollution of water of the river Ganga. State how pollution and contamination of river water

OR

- a) The first trophic level in a food chain is always a green plant. Why?
b) What is an ecosystem? List its two main components. We do not clean natural ponds or lakes but an aquarium needs to be cleaned regularly. Why is it so? Explain.

SECTION B

- 22 Draw the ray diagram for the refraction of light through a triangular glass prism. Mark (i) angle of incidence (ii) angle of emergence in the diagram. 2
23 Define least count of an instrument. An ammeter has 20 divisions between mark 0 and mark 2 on its scale. Calculate the least count of the ammeter. 2
24 a) The soap solution was added to the given water samples 2
A-Distilled water, B - underground water and C-Distilled water & CaSO₄. Which of the given water sample will produce the maximum foam and which will give rise to scum.
b) What is scum?
25 Two beakers A and B contain Iron sulphate solution. What do you observe when a small piece of copper is placed in beaker A and when a small piece of zinc is placed in beaker B? Why? 2
26 What precautions would you take while performing the experiment, "Light is necessary for photosynthesis? Write any two precautions. 2
27 A student while setting up the experiment to show that CO₂ is evolved during respiration committed some errors. Name any two errors a student is likely to commit. 2

End of the Question Paper