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Code Number 86/2



INDIAN SCHOOL MUSCAT  
FIRST PRELIMINARY EXAMINATION 2017  
SCIENCE

CLASS: X  
13.12.2017

Sub. Code: 086

Time Allotted: 3 Hrs  
Max. Marks: 80

**General Instructions:**

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

**SECTION A**

1. The danger signals installed at the top of tall buildings are red in colour. Why? 1
2. Why do all elements of the same group have similar properties? 1
3. In the Chlor-alkali process, a gas X is formed as byproduct. The gas X reacts with lime water to give a compound Y which used as a bleaching agent. 2
  - i) Identify X and Y.
  - ii) Write the chemical equation of the reaction involved in the formation of Y.
4. 1. The gene for red hair is recessive to the gene for black hair. What will be the hair colour of a person if he inherits a gene for red hair from his mother and gene for black hair from his father? 2
  2. What are genes?
5. 1. Name the part where 2
  - a. Fertilization take place b. Fertilized egg gets implanted
  2. Why do testes lie outside the abdominal cavity?
6. i) A chemical reaction takes place when a white salt is exposed to sunlight. 3
  - a) Identify the salt and the type of chemical reaction.

b) Mention one commercial use of this salt.

ii) Why do we apply paint on iron articles

**OR**

i) A shiny brown coloured element X on heating in air becomes black in colour.

a) Name the element X and the black coloured compound formed.

b) Write the chemical equation of the given reaction.

ii) Why the oil and food containing items are flushed with nitrogen.

7. Give reason :

3

i) Rubbing of baking soda on the bee stung area gives relief.

ii) While diluting an acid, it is recommended to add acid to the water and not water to the acid.

iii) Plaster of Paris is stored in air tight containers.

8. Table given below shows a part of the periodic table

3

H							He
Li	Be	B	C	N	O	F	
Na	Mg	Al	Si	P	S	Cl	

Use the table and give reason for the following

i) Atomic size of Mg is less than that of Na.

ii) F is more reactive than Cl.

iii) Li and Na are considered as active metals.

9. a) What is the difference between a reflex action and walking?

3

b) Which part of the brain maintains posture and equilibrium?

10. 1. Name the process of

3

a. Removal of water from plants in vapour form by leaves.

b. Transfer of photosynthetic products to other parts of a plant

2. State one function each of Hydrochloric acid and Mucus.

**OR**

1. a. What would happen if there is no reabsorption of water in the nephron?

b. Define glomerulus.

c. Write any two methods used by plants to get rid of excretory products.

11. 1. Name the receptors for taste and smell.

3

2. Draw a neat diagram of a typical neuron and label any four parts.

12. A 5 cm tall object is placed perpendicular to the principal axis of a converging lens of focal length 20 cm. The distance of the object from the lens is 30 cm. Find the: position, nature and size of the image formed.

3

13. (a) Define the SI unit of resistance. 3  
(b) What are the factors on which resistivity of a material depend.  
(c) A wire of resistance  $20\Omega$  is doubled on itself. What will be the new resistance?

**OR**

- (a) State and prove Joules law of heating.  
(b) How does use of a fuse wire protect electrical appliances?
14. It is desired to obtain an erect image of an object, using concave mirror of focal length of 12 cm. 3  
(i) What should be the range of distance of an object placed in front of the mirror?  
(ii) Where will the image of this object formed, if it is placed 6 cm in front of the mirror? Draw a ray diagram to justify your answer.
15. A person needs a lens of power  $-4.5$  D for correction of her vision. 3  
(a) What kind of defect in vision is she suffering from?  
(b) What is the focal length of the corrective lens?  
(c) What is the nature of the corrective lens?
16. i) Give example of two non-metal that are lustrous and two metals having low density. 5  
ii) What are the constituents of solder alloy?  
iii) During the extraction of metal, electrolytic refining is used to obtain pure metals.  
a) Which material will be used as anode and cathode for refining of silver metal?  
b) Where do we get pure silver after passing electric current?
17. i) State Mendeleev's Periodic Law and two achievements of his classification. 5  
ii) The electronic configuration of two elements P & Q are 2,8,7 and 2,8,8,2.  
a) What is the atomic number and valency of P?  
b) Identify the group and period number of Q.  
c) What will be the formula of the compound formed and the nature of the bond between P & Q?

**OR**

- i) Differentiate between the arrangement of elements in Mendeleev's periodic table and Modern periodic table.  
ii) An element "X" has mass number 35 and the number of neutrons, is 18. Identify the group number and period of "X".
18. 1. Define speciation. Will geographical isolation be a major factor in the speciation of a self-pollinating plant species? Give reason. 5  
2. Name the four tools of tracing evolutionary relationships which have been used for studying human evolution.

19. 1. Why is vegetative propagation practiced for growing some types of plants? 5  
2. Some flowers contain either stamens or carpels whereas some flowers contain both.  
Categorize the two types of flowers and give one example of each.
20. 1. (a) State Ohm's law 5  
(b) Derive an expression for the effective resistance when three resistors  $R_1$ ,  $R_2$  and  $R_3$  are connected in parallel.  
(c) Calculate the maximum current and minimum current flowing through the circuit of potential difference 12V and having two resistors  $4\Omega$  and  $6\Omega$  respectively.
21. (a) Explain with the help of an activity, the force experienced by a current carrying conductor placed in a magnetic field. 5  
(b) State the rule with which the direction of force can be identified.  
(c) Magnetic field lines never intersect each other. Justify the statement

### SECTION B

22. i) On adding zinc granules to freshly prepared ferrous sulphate solution, the colour of the zinc granule changes from \_\_\_\_\_ to \_\_\_\_\_. 2  
ii) What will be the observation when zinc granules are dropped in the aluminium sulphate solution? Why?
23. A Solution X on reaction with Zn gives sodium zincate & hydrogen gas is evolved but does not react with sodium carbonate whereas solution Y reacts with sodium carbonate to give  $ZnCl_2$  and  $CO_2$  is evolved 2  
i) Identify solution X & Y  
ii) Name the type of reaction when X reacts with Y.
24. Write any two steps involved in the process of binary fission in Amoeba. 2
25. A star shaped figure was cut in the black paper strip used for covering the leaf of a destarched plant used for demonstrating that light is necessary for photosynthesis. At the end of the experiment, the leaf was tested for starch with iodine. Mention the colour found in the star shaped figure on the leaf with reason. 2
26. Draw a glass slab and mark its parts. 2  
What are the factors on which lateral displacement depend.
27. Draw a circuit diagram that can be used to verify Ohm's law. 2

**End of the Question Paper**