

INTERNATIONAL INDIAN SCHOOL DAMMAM  
PRELIMINARY EXAMINATION, JANUARY 2018

CLASS: X

SET A

Marks: 80

SUBJ. SCIENCE

Time : 3Hrs

General instructions:

- (i) The question paper comprises two sections, A and B. you are to attempt both the section
- (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 and two questions of five marks.
- (v) Question numbers 1 and 2 in section A are one mark question. They are to be answered in one word or in one sentence.
- (vi) Question numbers 3 to 5 are 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. What does the high level of total coliform count in river ganga indicate ? 1
2. "The sex of the child is determined by what is inherited from the father and not the mother " . Justify. 1
3. (1)A shiny brown coloured element X on heating in air becomes black in colour. Name the element X and the black coloured compound formed. 2  
(2)Why do potato chips manufacturers fill the packet of chips with nitrogen gas?
4. A wire of resistance  $10\Omega$  is bent in the form of a closed circle. What is the effective resistance between the two points at the ends of any diameter of the circle? 2
5. What is AIDS? Name the causative organism .State one mode of transmission of this disease. Suggest one measure to prevent it. 2

6. A spherical mirror produces an image of magnification  $-1$  on a screen placed at a distance of 50 cm from the mirror.
- Write the type of mirror.
  - Find the distance of the image from the object. 3
  - What is the focal length of the mirror?
  - Draw the ray diagram to show the image formation in this case.

OR

- Why is the magnification produced by a concave lens always less than 1?
  - One half of a convex lens of focal length 10 cm is covered with a black paper. Can such a lens produce an image of a complete object placed at a distance of 30 cm from the lens? Draw a diagram to justify your answer
- A person cannot read newspaper placed nearer than 50 cm from his eyes. Name the defect of vision he is suffering from. List its two possible causes. Draw a ray diagram to show how this defect may be corrected using a lens of appropriate focal length 3
- Why is tungsten used almost exclusively for filament of electric lamps? 3
  - Why does the cord of an electric heater not glow while the heating element does?
  - How does the resistance of a wire vary with its area of cross-section?
- Write chemical equations for what happens when 3
  - Ethanol is burnt in air.
  - Ethanol is heated with excess concentrated  $\text{H}_2\text{SO}_4$  at 443K.
  - A piece of sodium is dropped into ethanol.

OR

- What is the difference between the chemical composition of soaps and detergents?
  - State in brief the action of soaps in removing an oily spot from a shirt.
- Draw the structure of a neuron and label the following on it: 3
    - Nucleus
    - dendrite
    - cell body
    - axon
  - List any two methods of contraception used by humans. How do their use have a direct effect on the health and prosperity of a family?
- What are fossils? How do we calculate the age of fossils? 3
  - In the following food chain, 5J of energy is available to man. How much energy was available in the producer level?  
Plants  $\rightarrow$  goat  $\rightarrow$  Man
  - What is vegetative propagation? Give any two advantages

OR

  - What are the functions of stomata?

12. (1) Define functional group  
 (2) Draw the structural formulae of all the possible isomers of the compound with the molecular formula  $C_3H_6O$ .

13.

GROUP →	1	2	3-12	13	14	15	16	17	18
PERIOD↓									
2	A				B		C	D	E
3	F				G				H

On the basis of the above table, answer the following questions:

3

- Name the element which will form only covalent compounds?
- Which element is a metal with valency one?
- Which element exhibits properties of both metals and non-metals?
- Which element shows a greater tendency to lose electrons, A or D?
- Out of F and G, which has a bigger atomic radius.
- Write the formula of the compound formed when C combines with F.

14. Ozone ( $O_3$ ) is a molecule formed by three atoms of oxygen. Unlike oxygen which is required for respiration by aerobic organisms, ozone is a deadly poison. However at higher levels of the atmosphere, ozone performs an essential function. Like other environmental problems, ozone layer depletion also has become a major issue for all nations on the earth.

3

- How is ozone formed in the nature?
- How can you spread awareness about the importance of ozone layer in our life?
- What values can you inculcate in the public?

15. i) State the function of the following in the human alimentary canal:

- Liver
- large intestine

3

- ii) Complete the following table

Sl no	Name of the gland	Name of hormone	Function
1	Thyroid	-----	Regulates metabolism of fats, protein and carbohydrates
2	-----	Insulin	Regulates blood sugar level
3	pituitary	-----	-----

16. (i) Give reasons
- (1) The colour of the clear sky is blue.
  - (2) The sky appears red at the time of sunrise and sunset.
  - (3) The stars appear to twinkle.
- 5

(ii) Describe the formation of rainbow in the sky with the help of a ray diagram.

17. (a) Identify the compound of calcium which is yellowish white powder and is used for disinfecting drinking water. How is it prepared from NaCl.
- (b) What can you say about the pH of a solution that liberates  $\text{CO}_2$  from sodium carbonate?
- (c) Why does dry HCl gas not change the colour of the dry litmus paper
- 5

OR

(1) A sodium compound is used for removing permanent hardness of water. Identify the compound. How is it prepared from NaCl.

(2) Which acid and base are used in formation of following salts

(a)  $\text{CaCl}_2$       (b)  $\text{NaNO}_3$

18. (1) Show the formation of  $\text{Na}_2\text{O}$  by the transfer of electrons between the combining atoms.
- 5

(2) A metal A, which is used in the thermite process when heated with oxygen gives an oxide B, which is amphoteric in nature? Identify A and B. Write down the reactions of oxide B with HCl and NaOH.

19. (a) Name the electric device that converts electrical energy into mechanical energy? Explain its working with the help of a neat labeled diagram.
- (b) What is the frequency of A.C in India?
- (c) State one advantage of A.C over D.C
- 5

20. i) Why is there a need to harness non-conventional sources of energy? Give any two reasons.
- 5

ii) Explain the ways in which glucose is broken down in the absence of oxygen.

iii) How does the embryo get nourishment inside the mother's body?

OR

- i) Draw a sectional view of the human female reproductive system and label the parts where:
  - a) Eggs develop
  - b) Fertilisation takes place
  - c) Fertilised eggs are implanted
- ii) Why is it not possible to make use of solar cells to meet all our energy needs? State at least two reasons to support your answer.
- iii) How do homologous organs differ from analogous organs?
- iv) Name any one accessory gland of human male reproductive system.

21. i) Why do aquatic organisms breath faster than terrestrial organisms?  
ii) How is the required PH maintained in the stomach and small intestine? 5  
iii) With the help of a suitable example , explain why certain traits cannot be passed on to the next generation. What are such traits called?  
iv) Name two excretory products other than  $O_2$  and  $CO_2$  in plants.  
V ) Define translocation.
22. To illustrate the process of binary fission in amoeba draw diagrams of various stages of this process in the correct sequence. How is binary fission different from multiple fission? 2
23. In an experiment to prepare a temporary mount of leaf peel to show stomata , why do we use glycerine and safranin? 2
24. What do you observe when you drops of acetic acid to a test tube containing: 2  
(a) Phenolphthalein (c) Universal indicator  
(b) Distilled water (d) sodium hydrogen carbonate
25. Two beakers A and B contain  $FeSO_4$  solution. In the beaker A is placed a small piece of copper and in the beaker B is placed a small piece of zinc. What will your observation? Arrange the metals iron, copper and zinc in the increasing order of their chemical activities. 2
26. Two resistors of  $3\Omega$  and  $6\Omega$  are connected in parallel circuit. If the magnitude of current in  $3\Omega$  resistor is  $2A$  . What is the magnitude of current in  $6\Omega$  resistor? 2

OR

What is likely to happen and how it would affect the value of resistance if we pass the current for a longer time?

27. An equilateral prism is used in an experiment on refraction. If the angle of incidence is  $40^\circ$  and angle of emergence is  $50^\circ$  , calculate the angle of deviation. 2