



INDIAN SCHOOL SOHAR
PRE-BOARD EXAM- 2017
SCIENCE

CLASS: X

Time: 3 Hours

DATE: 29 /1 /2017

Maximum. Marks: 90

General Instructions:

- (i) The question paper comprises of two Sections, A and B. You are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) There is no overall choice in any of the question.
- (iv) All questions of Section-A and B are to be attempted separately.
- (v) Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.
- (vi) Question numbers 4 to 6 in Section-A are two marks questions. These are to be answered in about 30 words each.
- (vii) Question numbers 7 to 18 in Section-A are three marks questions. These are to be answered in about 50 words each.
- (viii) Question numbers 19 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.
- (ix) Question numbers 25 to 33 in Section-B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.
- (x) Question numbers 34 to 36 in Section-B are two marks questions based on practical skills. These are to be answered in brief.

SECTION- A

1. What are three R's in saving the environment? (1)
2. Study the given food chain : (1)
 Grass → Grasshopper → Frog → Snake
 To which of the two consumers, frog or snake will more energy be available and why?
3. How do *Leishmania* and *Plasmodium* reproduce? (1)
4. A concave mirror produces an erect image whose length is 4 times the length of the object. If the focal length of the mirror is 20cm, calculate the distance of the object and the image from the mirror. (2)
5. We should use coal and petroleum judiciously. Why? (2)
6. Write two main advantages and two ill effects of constructing a big dam? (2)
7. An organic compound 'A' is an essential constituent of wine and beer. Oxidation of 'A' yields an organic acid 'B' which is present in vinegar. Name the compounds 'A' and 'B' and write their structural formula. What happens when 'A' and 'B' react in the presence of an acid catalyst? Write the chemical equation of this reaction. (3)
8. What is a hydrogenation reaction? Write an equation to represent this reaction. How is the reaction useful in vegetable ghee industry? (3)

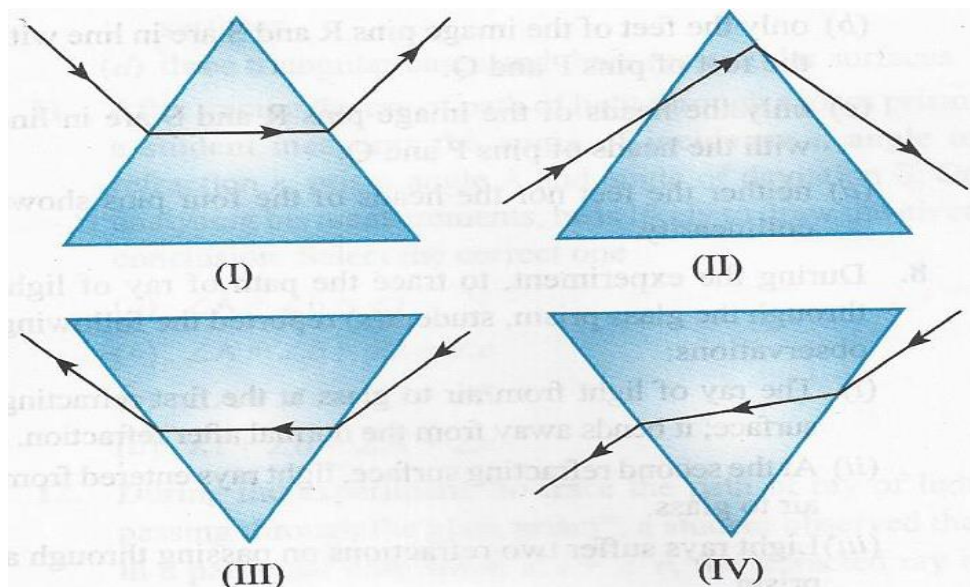
9. (a) A metal 'X' forms an oxide having the formula XO. It belongs to 3rd period in the Modern Periodic Table. Write the atomic number, valency, electronic configuration and name of the group to which the element belongs. (3)
 (b) State Mendeleev's Periodic Law.
10. The elements of second period of the periodic table are given below: (3)
 Li Be B C N O F
 (a) Give reasons to explain why atomic radii decreases from Li to F.
 (b) Identify the most (i) metallic (ii) non metallic element.
11. How does cross pollination occur in plants? How does pollination lead to fertilization in plants? (3)
12. (a) How are fossils formed? State two methods of determining the age of fossils. (3)
 (b) List the factors that lead to speciation.
13. " In humans genetically the sex of a new born child is determined by the father and not by the mother". Justify this statement. (3)
14. (a) Water bodies are our lifeline as well as that of all other living organisms. Explain, how an activity of human kind can harm life forms in water bodies. (3)
 (b) Why is damage to the ozone layer a cause of concern?
15. According to the 2001 census report, India's population growth was around 1.7%. Such an alarming growth rate could lead to an absolute scarcity of basic requirements like food, shelter and clothing, in spite of significant progress made in these areas. (3)
 (a) What could be the reasons for adopting contraceptives methods? (four points)
 (b) If a woman is using copper-T will it help in protecting her from STDs? Justify.
16. Rohit wants to have an erect image of an object using a converging mirror of radius of curvature 40cm. (3)
 (a) Specify the range of distance where the object can be placed in front of the mirror.
 (b) Is the image smaller or larger than the object?
 (c) Draw a ray diagram to show the image formation in this case.
17. A person cannot read newspaper placed nearer than 50cm from his eyes. (3)
 (a) Name the defect of vision he is suffering from.
 (b) Which type of lens is suitable to correct this defect?
 (c) Draw a ray diagram to show this defect of vision.
18. What is meant by sustainable management? List four changes you would like to incorporate in your life style which would facilitate the more towards a sustainable use of available resources in our country. (3)
19. (a) Draw the electron dot structure of simplest ketone. (5)
 (b) Saturated hydrocarbons burn with a blue flame while unsaturated hydrocarbons burns with a sooty flame. Why ?
 (c) Write the names of (i) $\text{CH}_3\text{CH}_2\text{Br}$ (ii) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$.
 (d) Name the main product formed when ethyl ethanoate is treated with NaOH solution. Write the chemical equation to represent this reaction.

20. (a) Draw a neat diagram of the female reproductive system and label the parts where (5)
 (i) egg develops (ii) fertilization takes place
 (iii) sperm enters the female genital tract. (iv) fertilized egg gets implanted.
 (b) List the changes that occur in the uterus of a female to receive the zygote.
21. (a) Explain Mendel's experiment on inheritance of traits with diagram considering only one (5)
 visible contrasting character.
 (b) Briefly, explain the mechanism of inheritance of chromosomes used by all sexually reproducing organism.
22. (a) "A convex lens can form a magnified erect as well as a magnified inverted image of (5)
 an object placed in front of it." Draw ray diagrams to justify this statement by stating the position of object with respect to lens in each case.
 (b) An object of height 4cm is placed at a distance of 20cm from a concave lens of focal length 10cm. Determine the position and size of the image formed.
23. (a) Explain by providing reason for the following: (5)
 (i) Sun appears flattened during sunrise and sunset
 (ii) Red color is selected for danger signal
 (b) White light breaks up into its components while passing through a glass prism. Name this phenomenon. What is the cause of this phenomenon? Draw a ray diagram to show the path of light rays in this phenomenon.
24. (a) When a ray of light passes from air to water, which angle is greater : angle of incidence (5)
 or angle of refraction? Give reason.
 (b) The refractive index of water is $\frac{4}{3}$ and refractive index of glass is $\frac{3}{2}$.Find the refractive index of glass with respect to water.
 (c) Define lateral displacement. Draw a labeled ray diagram to show the refraction of light through a rectangular glass slab.

SECTION- B

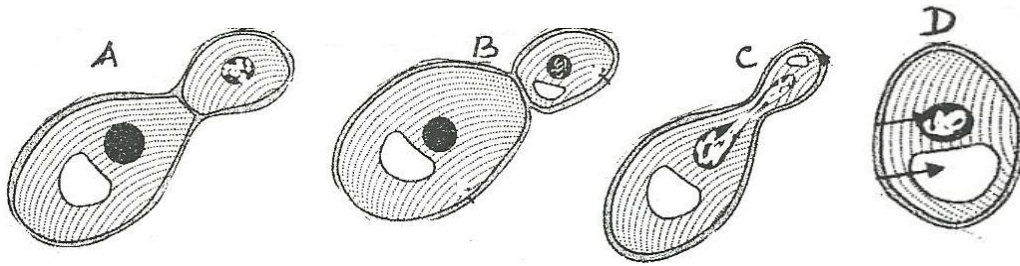
25. A student has to prepare 20% aqueous solution of sodium hydroxide for the study of (1)
 saponification reaction. On opening the lid of the bottle of NaOH, he would observe that it is in the form of:
 (a) fine white powder (b) white pellets/flakes
 (c) small white beads (d) transparent, colourless beads.
26. A student is testing water to know which is best for cleansing purposes with soaps. He (1)
 would find that the cleansing action of soaps is best when he uses water obtained from:
 (a) Rain (b) tap (c) hand pump (d) pond.
27. Acetic acid smells like (1)
 (a) An orange (b) an onion (c) lemon juice (d) vinegar.
28. Magnification produced by a rear view mirror fitted in vehicles (1)
 (a) is more than one
 (b) is less than one
 (c) is equal to one
 (d) can be more than or less than one according to the position of the object in front of the mirror.

29. The property of the mirror used in burning paper is (1)
- Rays from an object placed at a larger distance from a concave mirror after reflection forms the image at the focus
 - Rays from an object placed at a larger distance from a convex mirror after reflection forms the image at the focus
 - Rays from an object placed at focus after reflection from a convex mirror forms the image at a very large distance.
 - Rays from an object placed between F and $2F$ in a concave mirror after reflection forms the image at the focus.
30. The focal length of a concave mirror is 10cm. The position of the object that is useful for getting an enlarged image which can be caught on a screen is : (1)
- Placed at a distance of 10cm from the pole of the mirror
 - Placed at a distance of 20cm from the pole of the mirror
 - Placed at a distance of 5cm from the pole of the mirror
 - Placed at a distance of 15cm from the pole of the mirror.
31. While performing the experiment to trace the path of ray of light through a glass prism, four students marked the path of incident ray and emergent ray in their diagrams in the manner shown below: (1)



The correct path of the rays has been shown by the student

- I
 - II
 - III
 - IV
32. The scar on a seed at the point of attachment of stalk is known as: (1)
- Micropyle
 - Hilum
 - Funicle
 - Testa.
33. Given below are stages of budding in yeast. Which among the following is the correct sequence of stages? (1)



The correct sequence of these stages is:

- (a) A,B,C,D (b) D,C,A,B (c) B,D,A,C (d) C,A,D,B.

34. A teacher explained to the students about homologous and analogous conditions. He then gave two examples and asked the students to identify them as homologous or analogous organs giving a reason. (2)

- (a) Human arms and forelimbs of horse. (b) Potato and sweet potato.

35. When you add sodium carbonate to acetic acid in a test tube, a gas liberates immediately. Name the gas and describe a method to test it. (2)

36. When an object placed in front of the convex mirror is moved towards the pole of the mirror, will the image move towards or away from the pole of the mirror? What will happen to the size of the image as the object is moved towards the pole of the mirror? What will be the nature of the image formed? (2)
