

INDIAN SCHOOL SOHAR
PRE-BOARD EXAM- 2016
SCIENCE

CLASS: X

Time: 3Hours

DATE: 02 /2/2016

Maximum Marks: 90

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) There is no 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 question. They 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 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 5 marks questions. These are to be answered in 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. Write the name of each of the following functional groups:
 - (a) -OH (1)
 - (b) >C=O
2. In a lake contaminated with pesticides, which one of the following organisms living in the lake will contain the maximum amount of pesticide and why?
 Small fish, Zooplankton, Big fish, phytoplankton, Water birds (1)
3. Name the phenomenon responsible for the blue color of sky. (1)
4. Building of big dams gives rise to some problems. List three main problems that may arise. Suggest a solution to any one of these problems. (2)
5. (a) Name any two elements present in fossil fuels in addition to carbon.
 (b) State two reasons of launching the “Ganga Action Plan”. Which bacteria was found in Ganga water indicating contamination? (2)
6. The magnification produced by a spherical mirror is “+1/4”. Analyzing this value, state i) the type of the spherical mirror ii) three characteristics of the image formed by the mirror. (2)
7. (i) An element ‘X’ is placed in the 13th group and 3rd period of the Modern Periodic Table. Answer the following questions stating reason for your answer in each case:
 (a) Write the electronic configuration of the element ‘X’.
 (b) Write the formula of the compound formed when element ‘X’ reacts with another element ‘Y’ of atomic number 17.

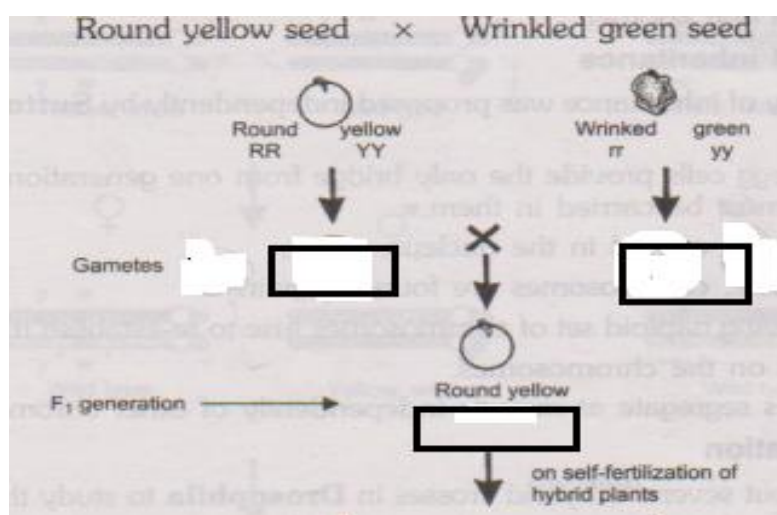
- (ii) How does the tendency to gain electrons change as we go down the 16th group of periodic table? why? (3)
8. (a) What is a functional group?
(b) Draw the structure of
(i) Chloropentane
(ii) Propanone (3)
(c) How is scum formed?
9. Write two advantages of sustainable management of natural resources. Out of the two –reuse and recycle-which is better and why? List 2 advantages of conserving water in the form of ground water. (3)
10. An organic compound X is an essential constituent of wine and beer. X is responsible for the intoxication caused by these drinks. Oxidation of X yields an organic acid Y which is present in vinegar. Name the compounds X and Y. Write the molecular formulae and draw the electron dot structures of X and Y. (3)
11. (a) How does the placenta help in the development of the human embryo?
(b) How does reproduction in *Planaria* differ from that of *Leishmania*? (3)
12. Explain with an example each, how the sex of a newborn individual is genetically determined or is based on environmental cues? (3)
13. (a) Preserved traces of living organisms are called fossils. How are fossils formed? State two methods of determining the age of fossils.
(b) List the factors that lead to speciation. (3)
14. What is meant by advanced sunrise and delayed sunset? Draw a labeled diagram to explain this phenomena. (3)
15. A 5cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 18cm at a distance of 12cm from it. Use lens formula to determine the position, size and nature of the image formed. (3)
16. A student is not able to see clearly the questions written on the blackboard placed at a distance of 5m from him. (3)
(i) Name the defect of vision he is suffering from.
(ii) What are the causes for this defect?
(iii) With the help of labeled ray diagrams show the defect and how this can be corrected?
17. In the following table, the positions of six elements A,B,C,D,E and F are given as they are in the Modern Periodic Table:

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

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

- (i) Name the element which forms only covalent compounds.
(ii) Name the element which is a metal with valency three.
(iii) Name the element which is a non-metal with valency three.
(iv) Out of B and C, whose atomic radius is bigger and why?
(v) Write the common name for the family to which the elements D and F belong. (3)

18. You know that many women die every year in India, due to complications of pregnancy and child birth. They do not get proper medical support due to illiteracy and poverty. Family planning is being stressed by the Government. Answer the following based on the information given.
- Name any two contraceptive methods used to avoid the unwanted pregnancy.
 - How does their use have direct effects on the health?
 - Why should the female- male sex ratio be maintained? (3)
19. (a) What is Esterification? Give one example.
- What happens when Ethanol is heated at 443K with conc. H_2SO_4 ?
 - Write the IUPAC name of the following:
 - $CH_3-CH_2-CH_2-\underset{\substack{| \\ CH_3}}{CH}-CH_3$
 - $CH_3-CH_2-CH_2-CHO$
- (d) Name the process of converting vegetable oil to vegetable ghee. (5)
20. (a) Given below is the experiment carried out by Mendel to study inheritance of two traits in *Pisum sativum*. Fill in the boxes with an appropriate answer. (5)



F₂ generation X F₁

RATIO

315 round, yellow -

108 round, green -

101 wrinkled, yellow -

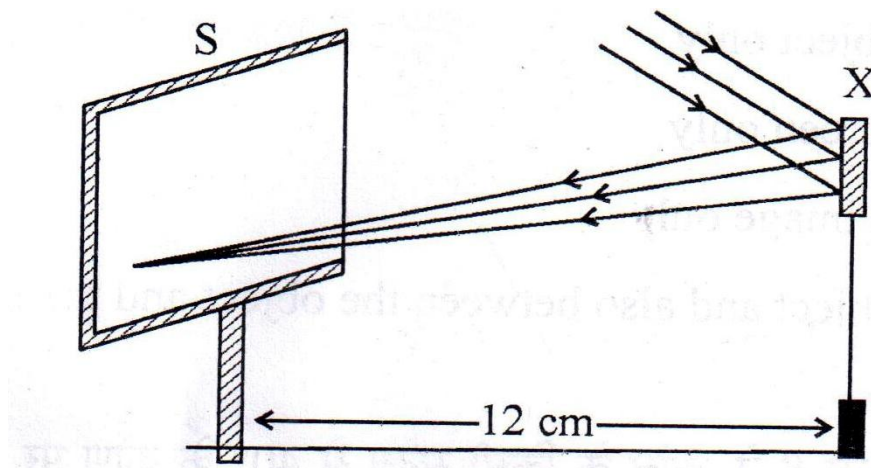
32 wrinkled, green -

- Explain, briefly the mechanism of inheritance of chromosomes used by all sexually reproducing organism.
21. (a) Draw a well labeled diagram of the longitudinal section of flower pistil to show fertilisation in plants.
- Many plants producing flowers are propagated vegetatively. Give two reasons (5)
22. Improvements in our life-style have resulted in greater amounts of waste material generation. Changes in attitude also have a role to play.

- (a) State two ways in which non- biodegradable substances would affect the environment.
 - (b) List two methods of safe disposal of the non-biodegradable waste.
 - (c) How can you help in reducing the problem of waste disposal?
 - (d) Using plastic bags have harmful effects on the environment. Suggest alternatives to plastic bags. (5)
 - (e) Damage to the ozone layer is a cause of concern'. Justify the statement.
23. (a) Name the type of the mirror that should be used to obtain (5)
- (i) a magnified and virtual image of an object.
 - (ii) a diminished and virtual image of an object.
- (b) Draw labeled ray diagrams to show the formation of required image in each of the two above cases. Which of these two mirrors could also form a magnified and real image of the object? State the position of the object for which this could happen.
24. (i) State Snell's law. The refractive indices of two media 'A' and 'B' are 2 and 1.5 (5) respectively. If the speed of light in medium 'B' is 2×10^8 m/s, calculate the speed of light in vacuum and medium 'A'.
- (ii) Why is convex lens used in microscope? Support your answer with a ray diagram.

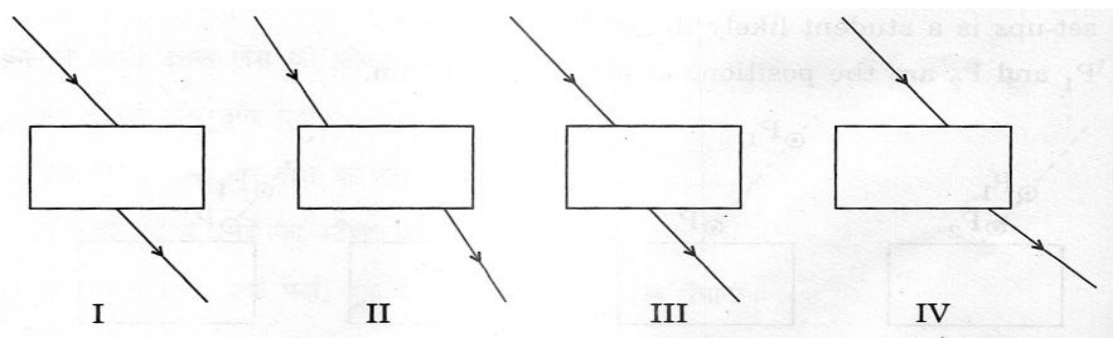
SECTION-B

25. A student takes 4 ml of distilled water in each of four test tubes I,II,III and IV, and then dissolves an equal amount of four different salts namely NaCl in I, CaCl_2 in II, MgCl_2 in III and KCl in IV. He then adds 8 drops of the given soap solution to each test tube and shakes the contents of the test tube 10 times. In which test tubes will enough lather (foam) be formed?
- (a) I and II (1)
 - (b) II and III
 - (c) I and IV
 - (d) III and IV
26. A student puts a drop of acetic acid first on a blue litmus paper and then on a red litmus paper. He would observe that
- (a) The red litmus paper turns colourless and there is no change in the blue litmus paper.
 - (b) The red litmus paper turns blue and the blue litmus paper turns red. (1)
 - (c) There is no change in the red litmus paper and the blue litmus paper turns red.
 - (d) There is no change in the blue litmus paper and the red litmus paper turns blue.
27. A few drops of ethanoic acid are added to solid sodium hydrogen carbonate by a student. He would immediately observe that:
- (a) A hissing sound is produced
 - (b) Brisk effervescence takes place
 - (c) Brown fumes evolve
 - (d) A pungent smelling gas evolves. (1)
28. Study the following diagram and select the correct the statement about the device 'X'. (1)

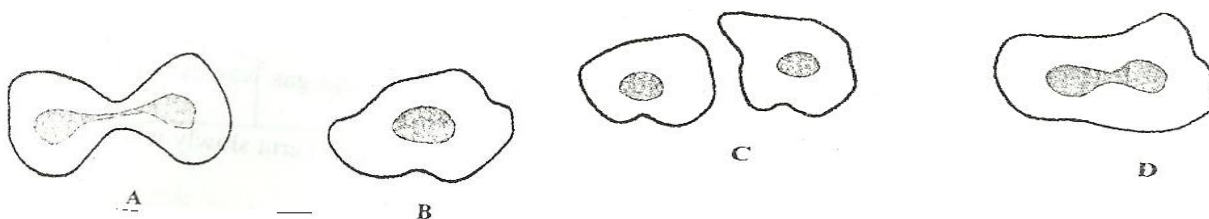


- a) Device 'X' is a concave mirror of radius of curvature 12cm.
 b) Device 'X' is a concave mirror of focal length 6cm.
 c) Device 'X' is a concave mirror of focal length 12cm.
 d) Device 'X' is a convex mirror of focal length 12cm.
29. Four students P,Q,R, and S traced the path of a ray of light passing through a glass slab (1) for an angle of incidence 40° and measured the angle of refraction. The values as measured by them were 18° , 22° , 25° and 30° respectively. The student who has performed the experiment methodically is
- (a) P (b) S (c) Q (d) R
30. Four students showed the following traces of the path of a ray of light passing through (1) a rectangular glass slab.

The trace more likely to be correct is that of student



- (a) I (b) II (c) III (d) IV
31. Given below are the stages of binary fission in amoeba. Which one of the following would you select as the correct sequence of these stages? (1)



a) A ,B,C,D

b) D, C, A , B

c) B,D,A, C

d) C,A, D,B.

32. In the given diagram of L.S of bean seed . The correct labelling is:

(1)



(a) Seed coat, cotyledon, plumule & radicle

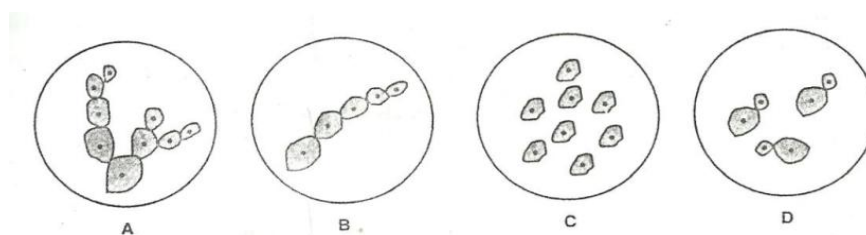
(b) Cotyledon. seed coat, radicle & plumule

(c) Seed coat, cotyledon, radicle & plumule

(d) Cotyledon. seed coat, plumule & radicle.

33. The following are the sketches made by some students.

(1)



The sketch not depicting budding in yeast is:

a) A

b) B

c) C

d) D.

34. A teacher asked a student to classify the following vegetables on the basis of homology and analogy : potato ,corm, ginger, sweet potato . justify it.

(2)

35. To find the image – distance for varying object – distances in case of a convex lens, a student obtains on a screen a sharp image of a bright object placed very far from the lens. After that he gradually moves the object towards the lens and each time focuses its image on the screen.

(2)

(i) In which direction – towards or away from the lens, does he move the screen to focus the object?

(ii) What happens to the size of image – does it increase or decrease?

(iii) What is the nature of the image formed when he moves the object very close to the lens?

36.(i) Mention the range of the angle of incidences to be taken while performing the experiment of refraction of light through glass prism.

(2)

(ii) What will be the size and nature of the image obtained on the screen while determining the focal length of a convex lens?
