

Sample Question Paper

Unsolved

SCIENCE

A Highly Simulated Practice Question Paper for CBSE Class X
Term II Examination (SA II)

Time : 3 Hours

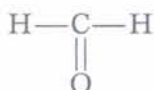
Max. Marks : 90

General Instructions

1. The question paper comprises of two sections A and B. You are to attempt both the sections. All questions are compulsory.
2. All questions of section A and all questions of section B are to be attempted separately.
3. Question numbers 1 to 3 in section A are 1 mark questions. These are to be answered in one word or one sentence.
4. Question numbers 4 to 7 are 2 marks questions to be answered in about 30 words.
5. Question numbers 8 to 19 are 3 marks questions to be answered in about 50 words.
6. Question numbers 20 to 24 are 5 marks questions to be answered in about 70 words.
7. In section B, question numbers 25 to 42 are multiple choice questions based on practical skills. Each question is a 1 mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. Name two devices which can produce a parallel beam of light when light from a point source is incident on it.
2. Write the common name and IUPAC name of the following compound.



3. What are the limitations of extracting energy from (a) the wind, (b) tides?
4. Rays from sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object?
5. Which phenomenon of light is involved in the formation of a rainbow? How does it form?
6. How does binary fission differ from multiple fission?

STAGE III

7. (a) Name four alkaline earth metals. To which group do they belong?
(b) Name four elements of VII group. Write the common name given to the elements of this group.
8. How is the refractive index of a medium related to the speed of light? Obtain an expression for refractive index of a medium with respect to another in terms of speed of light in these two media?
9. State law of refraction and draw labelled ray diagram.
10. What do you understand by advance sunrise and delayed sunset? Explain with the help of diagram.
11. (a) The elements A and B have atomic numbers 20 and 8 respectively. Write their electronic configurations.
(b) To which period and group does elements A and B belong?
12. (a) State two reasons for rejecting Newland's law of octaves.
(b) Write two demerits of Mendeleev's Periodic Table.
(c) Name a rare gas other than neon, (Ne) krypton (kr) and xenon (Xe) and write its electronic configuration.
13. Ethanol is used on a large scale at commercial level. This is a very useful chemical. It is commonly called alcohol and is the active ingredient of alcoholic drink. But consumption of alcohol also causes drunkenness and this practice is socially condemned.
Read the above text and answer the following questions
 - (a) As a responsible student of class, what steps would you take to discourage the use of alcohol?
 - (b) What values did learners have learnt from the above text?
14. The wall of a room was covered with a perfect plane mirror and two films were made. One film was made by recording the movement of man and the other that of his image. Later by viewing the two films, how can we distinguish between the two?
15. What is 'water harvesting'? Mention some traditional systems of water harvesting.
16. (a) How is vegetative propagation different from regeneration?
(b) Give difference between external fertilisation and internal fertilisation.
17. (a) Name the parts of female reproductive system.
(b) What is gestation period? Explain with examples.
18. In fruit flies, the sex chromosomes are XX for females and XY for males.
 - (a) Does the male fly inherit his X-chromosome from his mother or father?
 - (b) With respect to an X-linked gene, how many different types of gametes can a male produce?
 - (c) If a female is homozygous for an X-linked gene, how many different types of gametes can be produced for this gene?
 - (d) If a female is heterozygous for an X-linked gene, how many different types of gametes can be produced for this gene?

19. How did humans evolve? Explain in brief.
20. (a) A convex lens of focal length 20 cm can produce a magnified virtual as well as real image. Is this a correct statement? If yes, where shall the object be placed in each case for obtaining these images?
- (b) Light enters from air to glass having refractive index 1.50. What is the speed of light in the glass? [The speed of light in vacuum is $3 \times 10^8 \text{ ms}^{-1}$].

or

- (a) Draw a ray diagram showing the path of a ray of light when it enters with oblique incidence
- (i) from air into water and
- (ii) from water into air.
- (b) Under what condition in an arrangement of two plane mirrors, incident ray and reflected ray will always be parallel to each other, whatever may be the angle of incidence. Show the same with the help of diagram.
21. Give the basic features of the mechanism of inheritance.

or

Give reason for your choice.

A person first crossed pure-breed pea plant having round and yellow seeds with pure-breed pea plants having wrinkled and green seeds and found that only A-B type of seeds were produced in the F_1 -generation. When F_1 -generation pea plants having A-B type of seeds were cross-bred by self-pollination, then in addition to the original round-yellow and wrinkled-green seeds, two new varieties A-D and C-B type of seeds were also obtained.

- (a) What are A-B type of seeds?
- (b) State whether A and B are dominant traits or recessive traits.
- (c) What are A-D type of seeds?
- (d) What are C-B type of seeds?
- (e) Out of A-B and A-D types of seeds, which one will be produced in (i) minimum numbers, and (ii) maximum numbers, in the F_2 -generation?
22. (a) Give three important features of fossils which help in the study of evolution.
- (b) Differentiate between Homologous organs and Analogous Organs.

or

Explain the process of seed and fruit formation in plants.

23. Give salient features of Darwin's theory of natural selection.

or

Briefly describe three methods of plant propagation which are commonly used for growing garden plants. What is the advantage of growing them by this method?

24. (a) An organic compound 'X' which is sometimes used as an antifreeze has the molecular formula C_2H_6O . Compound 'X' on oxidation gives a compound 'Y' which gives effervescence with a baking soda solution. What can X and Y be? Write the structural formulae also.
- (b) (i) What is the molecular formula of alcohol which is derived from butane?
(ii) The melting points of three hydrocarbons X, Y and Z of a homologous series are $-183^\circ C$, $-138^\circ C$ and $-95.3^\circ C$ respectively. Which one would have minimum number of carbon atoms in its molecule?
- or
- (a) With the help of an equation, state what happens when Ethanoic acid reacts with a base?
- (b) Why are coal and petroleum called fossil fuels?
- (c) What type of fuels (i) burn without a flame and (ii) burn with a flame?
- (d) Why is conversion of ethanol to ethanoic acid an oxidation reaction?

Section B

25. When an object is placed anywhere between pole (P) and infinity in front of a convex mirror, the image formed is
- behind the mirror between pole (P) and focus (F)
 - behind the mirror at focus (F)
 - diminished (smaller than the object)
 - virtual and erect
- The correct options are
- | | |
|---------------|-------------------|
| (a) I and II | (b) I and III |
| (c) II and IV | (d) I, III and IV |
26. A concave mirror produces three times magnified real image of an object placed at 10 cm in front of it. Where is the image located?
- Image is formed at 30 m on the other side of the mirror
 - Image is formed at 30 cm in front of the mirror
 - Image is formed at 60 cm in front of the mirror
 - None of the above
27. The defect of myopia is caused
- due to eye ball being too large.
 - due to eye ball being too short.
 - due to high converging power of eye lens.
 - due to low converging power of eye lens.
- The correct options are
- | | |
|--------------|---------------|
| (a) I and II | (b) I and III |
| (c) I and IV | (d) II and IV |

28. If the power of a lens is +1.6 D. The nature of the lens will be
(a) convex (b) concave
(c) cylindrical (d) bifocal
29. If an object is placed at the focus of a concave mirror, the image is formed at
(a) infinity (b) focus on the other side
(c) between F and O (d) centre of curvature
30. As compared to covalent compounds, electrovalent compounds generally have
I. low melting points and low boiling points.
II. high melting points and high boiling points.
III. low solubility in water.
IV. high solubility in water.
The correct statements are
(a) I and III (b) I and IV
(c) II and III (d) II and IV
31. Butene may be converted to butane by the reaction of H_2 in the presence of
I. Ni II. Pt
III. Pd IV. Cd
The correct option (s) is/are
(a) I and IV (b) Only I
(c) II, III and IV (d) I, II and III
32. Graphite is a good conductor of current but diamond is a bad-conductor because
(a) diamond is hard and graphite is soft.
(b) graphite and diamond have different atomic configuration.
(c) graphite is composed of positively charged carbon ions.
(d) graphite has hexagonal layer structure with free (mobile) electrons while diamond has continuous tetrahedral covalent structure with no free electrons.
33. When ethanol reacts with sodium metal, a compound 'X' is formed with the evolution of hydrogen gas. The compound 'X' is
(a) sodium ethanoate (b) sodium ethoxide
(c) ethene (d) ethanoic acid
34. A synthetic detergent is a
(a) cleansing agent (b) soap
(c) catalyst (d) None of these
35. To observe *Amoeba* in a drop of water under the microscope, a drop was taken on a slide. The stain that will show *Amoeba* is
(a) iodine (b) safranin
(c) methylene blue (d) eosin

36. Which one of the following organisms divide/reproduce by multiple fission—a mode of asexual reproduction?
- (a) *Leishmania* (b) *Planaria*
(c) *Plasmodium* (d) *Rhizopus*
37. Sunken stomata are found in
- (a) hydrophytes (b) xerophytes
(c) mesophytes (d) None of these
38. Which of the following is/are a part of seed?
- I. Ovules II. Ovary
III. Cotyledon IV. Seed coat
- The correct option (s) is/are*
- (a) I and II (b) Only II
(c) III and IV (d) Only IV
39. Wings of insects and birds are
- (a) analogous (b) homologous
(c) vestigial (d) atavism
40. Which of the following is an inexhaustible resource?
- I. wind II. Solar energy
III. Coal IV. Petroleum
- The correct option (s) is/are*
- (a) Only I (b) II and IV
(c) I and II (d) Only IV
41. X and Y are two elements having similar properties which obey Newland's law of octaves. The minimum and the maximum number of elements in between X and Y respectively are
- (a) 6 and 8 (b) 7 and 15
(c) 8 and 14 (d) 6 and 13
42. The F_1 -generation has all tall and F_2 ratio is 3 : 1. It proves
- (a) law of dominance
(b) independent assortment
(c) law of segregation
(d) linkage solutions