

SCIENCE

A Highly Simulated Practice Questions Paper for CBSE Class X Examination

Time : 3 hrs

Max. Marks : 80

Instructions

- (i) The question paper comprises four Sections A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.
- (ii) **Section A** Qns. 1 to 20 all questions and parts there of are of one mark each. These questions contain multiple choice questions (MCQs), very short answer questions and assertion-reason type questions. Answers to these should be given in one word or one sentence.
- (iii) **Section B** Qns. 21 to 26 are short answer type questions, carrying 2 marks each. Answers to these questions should be in the range of 30 to 50 words.
- (iv) **Section C** Qns. 27 to 33 are short answer type questions, carrying 3 marks each. Answers to these questions should be in the range of 50 to 80 words.
- (v) **Section D** Qns. 34 to 36 are long answer type question carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.
- (vi) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions
- (vii) Wherever necessary, neat and properly labelled diagrams should be drawn.

Section A

1. Why carbon dioxide is mostly transported in dissolved form in our blood?
2. What happens when sodium carbonate decahydrate is heated?
Or
What happens when nitric acid is added to egg shell?
3. By using which type of mirror, the full length image of a distant tall tree can definitely be seen?

* You are advised to attempt this sample paper without referring the answers given here. However, cross check your answers with the answers given at the end of paper after you complete the paper.

14. **Assertion** Rainbow is an example of dispersion of sunlight by water droplets.
Reason Light of shorter wavelength is scattered much more than light of larger wavelength.

15. **Assertion** When we blow CO_2 into a test-tube containing lime water, it turns milky.
Reason The change in colour shows the presence of CO_2 in the exhaled air.

16. **Assertion** Due to the missing of goats in the food chain, the population of tigers will decrease and the population of grass will increase.
Reason Food chain maintains the stability of an ecosystem.

Or

Assertion Respiration is opposite of photosynthesis.

Reason In photosynthesis food is made from energy and in respiration food is converted to energy.

Answer Q. Nos. 17-20 Contain five sub-parts each. You are expected to answer any four sub parts in these questions.

17. Read the following and answer any four questions from 17 (i) to 17 (v).

Study these table related to answer any four questions that follow :

Element	Atomic number
A	18
B	19
C	17
D	9
E	6

Answer the questions based on the table given above.

17. (i) Element 'E' shows following properties

- (i) It show catenation.
- (ii) Valency of E is +3.
- (iii) It is metallic in nature.
- (iv) It is element of 14th group and 2nd period.

Which of the above properties are correct?

- (a) (i), (ii)
- (b) (i), (ii), (iv)
- (c) (i), (iv)
- (d) All of above

17. (ii) Ascending order for electronegativity of given element is

- (a) $D < C < B$
- (b) $C < B < D$
- (c) $B < D < C$
- (d) $B < C < D$

17. (iii) Which element can easily form an ionic bond with element C?

- (a) A
- (b) B
- (c) D
- (d) E

17. (iv) Which pair of element belong to same group?

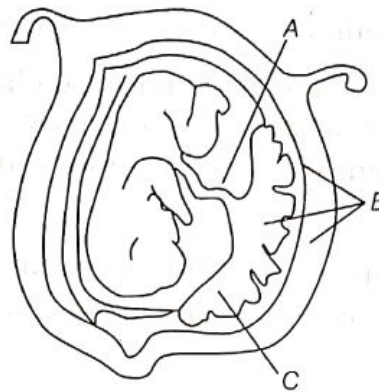
- (a) (A, B)
- (b) (B, C)
- (c) (C, D)
- (d) (D, E)

17. (v) Which of the following statements is correct?

- (a) D is the most electronegative element.
- (b) A is the inert gas element.
- (c) Element B is metallic in nature.
- (d) All of the above

18. Read the following and answer any four questions from 18 (i) to 18 (v).

The uterus or womb is a hollow, pear-shaped organ in a women's lower stomach between the bladder and rectum. It sheds the lining each month during menstruation. A fertilised egg become implanted in the uterus and the foetus develops.



18. (i) Name the part labelled A and B.
- Umbilical cord and placenta
 - Umbilical cord and Graafian follicle
 - Fallopian tube and Graafian follicle
 - Cytoplasm and umbilical cord
18. (ii) What determines the sex of a child?
- Chromosome content of the ovum
 - Chromosome content of the sperm
 - Number of days between ovulation and fertilisation
 - Number of days between fertilisation and implantation
18. (iii) Main function of amniotic fluid is
- shock absorber
 - exchange of nutrients
 - dissolving the wall of egg cell
 - secretion of enzymes
18. (iv) Human uterus is
- paired with well separated oviducts
 - single large chamber with posterior part of oviduct fused to it anteriorly
 - paired with partially fused oviducts
 - a single large chamber with completely fused oviduct.
18. (v) The table gives the average dietary requirements of iron in mg per day for females and males of various ages.

Age/years	Females	Males
1	7	7
10	11	10
20	15	10
pregnant	13	-
lactating	14	-
50	10	10

Why does the 20-year old female require the highest dietary intake of iron?

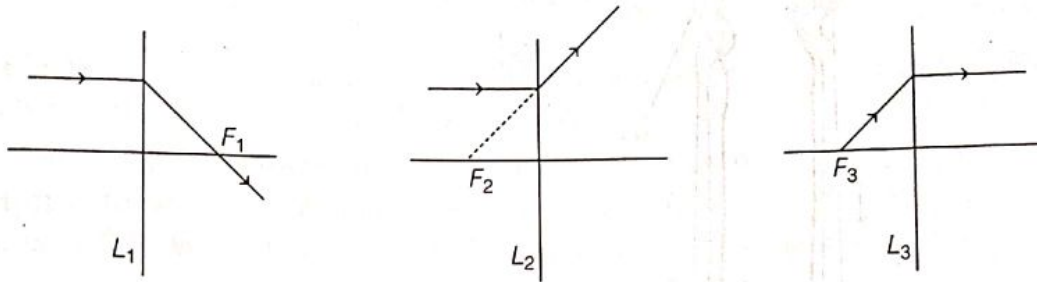
- to act as a store for pregnancy
- to make up for menstrual losses
- to promote protein synthesis
- to provide for milk production

19. Read the following and answer any four questions from 19 (i) to 19 (v).

Lens is a piece of transparent glass bound by two spherical surfaces. They are of two types : convex lens and concave lens. The lens formula is given by $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$, where u

is object distance, v is image distance and f is focal length. Focal length of convex lens is positive, whereas focal length of concave lens is negative. The linear magnification produced by lens is equal to the ratio of image distance to the object distance. If the magnification has positive value, the image is virtual and erect. And if the magnification has a negative value, the image will be real and inverted.

19. (i) The following figures show the path of light rays through three lenses marked L_1 , L_2 and L_3 and their focal points F_1 , F_2 and F_3 , respectively.



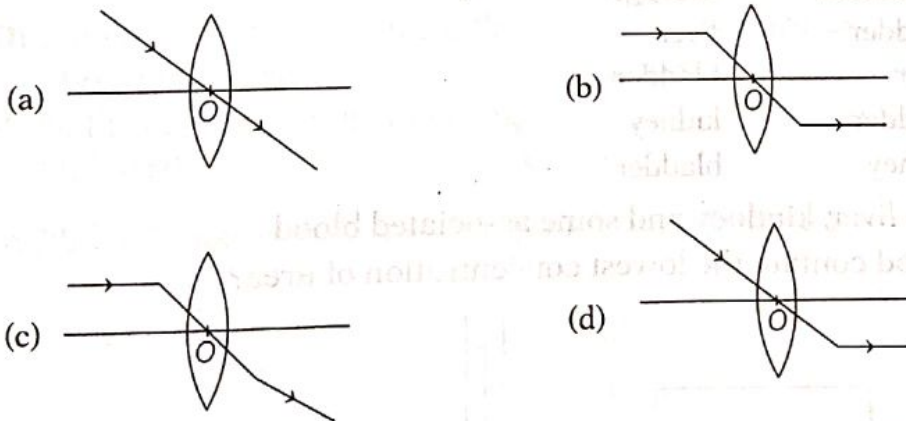
Out of L_1 , L_2 and L_3 concave lens/lenses is/are

- (a) only L_1 (b) only L_2
 (c) only L_3 (d) Both L_1 and L_3

19. (ii) If an object is placed at a distance of 12 cm from the convex lens of focal length 8 cm, the image distance will be

- (a) 12 cm (b) 24 cm
 (c) 36 cm (d) 48 cm

19. (iii) Which of the figures represents correct path of the ray through the optical centre of a thin convex lens?



19. (iv) An object is placed at $2F_1$ in front of a convex lens. The position of the image will be

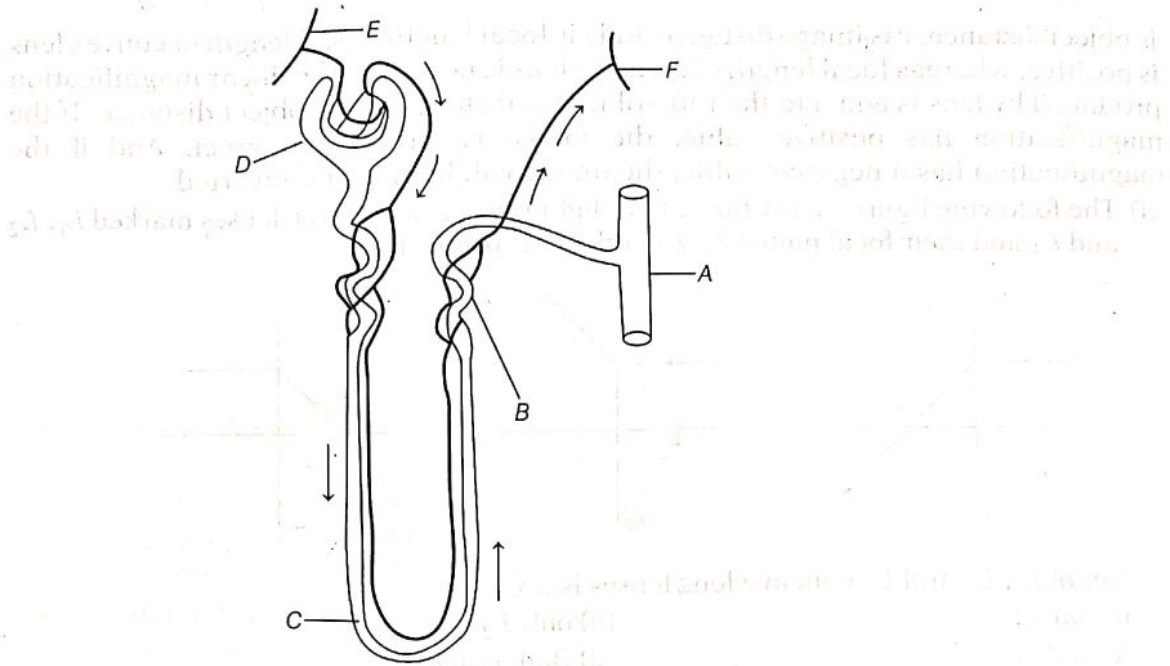
- (a) at $2F_2$ (b) at F_2
 (c) beyond $2F_1$ (d) None of these

19. (v) The most correct statement(s) for drawing the ray diagram for a convex lens is/are

- (a) a ray of light passing through the principal focus goes undeviated.
 (b) a ray of light passing through the optical centre goes undeviated.
 (c) a ray of light passing through the lens parallel to principal axis passes through the focus after refraction.
 (d) Both (b) and (c)

20. Read the following and answer any four questions from 20 (i) to 20 (v).

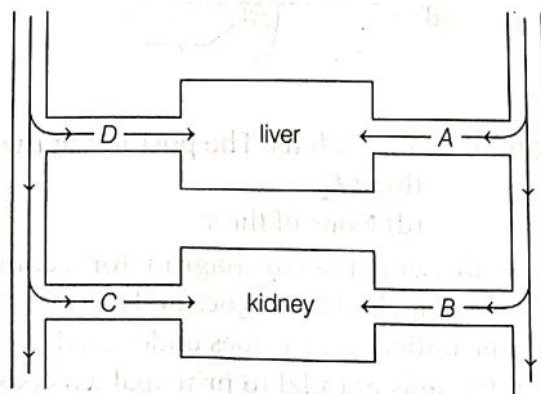
Nephron, functional unit of kidney, the structure that actually produces urine in the process of removing waste and excess substances from the blood.



20. (i) Label A signify.
 (a) Collecting duct (b) Bowman capsule
 (c) PCT (d) DCT
20. (ii) Urea is produced in one organ, filtered from the blood by a second organ and stored inside a third organ before being expelled from the body. Which organs carry out these functions?

	Production	Filtration	Storage
(a)	kidney	bladder	liver
(b)	kidney	liver	bladder
(c)	liver	bladder	kidney
(d)	liver	kidney	bladder

20. (iii) The diagram represents the liver, kidney and some associated blood.
 In which vessel will the blood contain the lowest concentration of urea?



- (a) A and B (b) C and B
 (c) C and D (d) A and D

20. (iv) The correct order of processes that occur in urine formation is
- glomerular filtration → secretion → reabsorption
 - secretion → glomerular filtration → reabsorption
 - glomerular filtration → reabsorption → secretion
 - secretion → reabsorption → glomerular filtration
- (v) Order of toxicity among ammonia, urea and uric acid (from lower to higher) is
- uric acid < urea < ammonia
 - uric acid < ammonia < urea
 - uric acid < uric acid < ammonia
 - uric acid < urea < uric acid

Section B

21. When electricity is passed through an aqueous solution of sodium chloride, three products are obtained. Then, why is the process called chlor-alkali process?
22. An electric iron consumes energy at a rate of 840 W when the heating is at the minimum rate and 360 W when the heating is at the maximum rate. The applied voltage is 220 V. What is the value of current and the resistance in each case?
23. Write any two properties of ionic compounds.

Or

Show the formation of aluminium chloride by the transfer of electrons between the atoms. (Atomic number of aluminium and chlorine are 13 and 17 respectively).

24. Describe the components of blood along with their functions.

Or

- Describe the role of Fallopian tubes in the female reproductive system.
- Explain placenta.

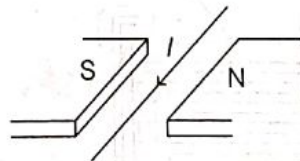
25. (i) Discuss the symptoms of the following bacterial diseases.

- Gonorrhoea
- Syphilis

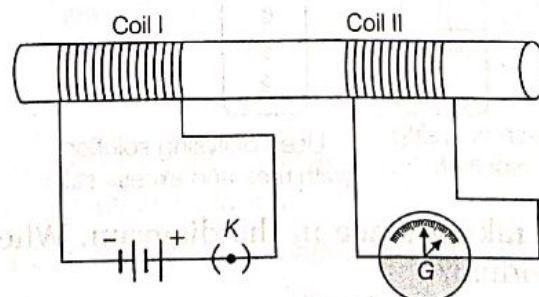
- (ii) Write the full form of the following.

- AIDS
- HIV

26. (i) In which direction does the wire shown in the diagram given below tend to move?



- (ii) In an experiment, there are two coils wound on a non-conducting cylindrical rod. Initially, key is not inserted. Discuss the case when key is inserted and when it is removed.



Section C

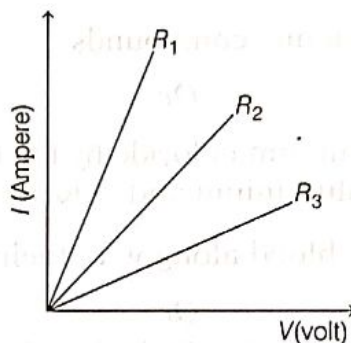
27. Describe the location, structure and functions of kidney in human beings.
28. State which of the following chemical reactions will take place or which will not, giving suitable reason for each?
- (i) $\text{Zn}(s) + \text{CuSO}_4(aq) \longrightarrow \text{ZnSO}_4(aq) + \text{Cu}(s)$
 - (ii) $\text{Fe}(s) + \text{ZnSO}_4(aq) \longrightarrow \text{FeSO}_4(aq) + \text{Zn}(s)$
 - (iii) $\text{Zn}(s) + \text{FeSO}_4(aq) \longrightarrow \text{ZnSO}_4(aq) + \text{Fe}(s)$

29. Give reason, why

- (i) connecting wires are made of copper,
- (ii) nichrome is used to make the element of electric heater and
- (iii) the 500 W bulb glows with more brightness than a 200 W bulb?

Or

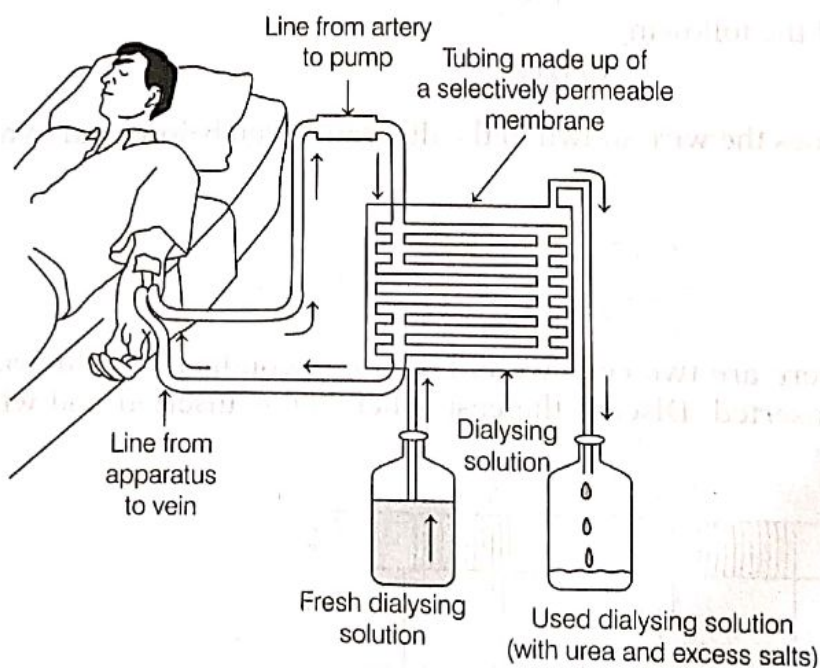
- (i) A student carries out an experiment and plots the V - I graph of three samples of nichrome wire with resistances R_1 , R_2 and R_3 , respectively as shown in figure. Interpret the graph by considering R_1 , R_2 and R_3 in proper order.



- (ii) Why does the electrical resistivity of a given metallic wire depend on the nature of the material?

30. Describe the stages of respiration.

31.



- (i) Identify the process taking place in the diagram. When does this process become essential for an individual?
- (ii) Describe the above process in detail.

32. During the reaction of some metals with dilute hydrochloric acid, following observations were made.
- The temperature of the reaction mixture rises when aluminium (Al) is added.
 - The reaction of sodium metal is found to be highly explosive.
 - Some bubbles of a gas are seen when lead (Pb) is reacted with the acid. Explain these observations giving suitable reasons.
33. (i) A convex lens made of a material of refractive index n_2 is kept in a medium of refractive index n_1 . A parallel beam of light is incident on the lens. Draw the path of rays of light emerging from the convex lens, if
- $n_1 < n_2$
 - $n_1 = n_2$
- (ii) If the magnification of the image formed by a mirror is negative, then what does it mean?

Section D

34. Write the structural formulae of all the isomers of an alkane with six C-atoms (C_6H_{16}).

Or

Explain the nature of the covalent bond using the bond formation in CH_3Cl .

35. 'Length of food chains in an ecosystem is generally limited to three or four trophic levels'. Justify the statement.

36. Give the answer of for following questions.

- Compare the power used in $2\ \Omega$ resistor in each of the following circuits
 - a 6 V battery in series with $1\ \Omega$ and $2\ \Omega$ resistors,
 - a 4 V battery in parallel with $12\ \Omega$ and $2\ \Omega$ resistors.
- How does the resistance of a wire vary with its area of cross-section?

Or

- A current of 1 A flows in a series circuit having an electric lamp and a conductor of $5\ \Omega$ when connected to a 10 V battery. Calculate the resistance of the electric lamp.
- Now, if a resistance of $10\ \Omega$ is connected in parallel with this series combination, then what change (if any) in current flowing through $5\ \Omega$ conductor and potential difference across the lamp will take place? Give reason.