

Sample Question Paper - 2



Time: 3 Hours

Maximum Marks: 80

Topic: CBSE 10 (Science)

General 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** - Question no. 1 to 20 - all questions and parts thereof 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** - Question no. 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** - Question no. 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** - Question no. 34 to 36 are long answer type questions carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.

Section – A

1. What is a homologous series of carbon compounds?
2. Give reason why do chips manufacturers usually flush bags of chips with gas such as nitrogen?
3. Two solutions X and Y are tested with universal indicator. Solution X turns orange whereas solution Y turns red. Which of the solutions is a stronger acid?
4. State two physical properties of gold which are of extreme use to jewellers.
5. Write the molecular formula of the 2nd and the 3rd member of the homologous series whose first member is methane.

6. List two biotic components of an ecosystem.

OR

What is food chain?

7. Mention the respiratory unit of lungs and excretory unit of kidneys.
8. A student determines the focal length of a device 'X' by focusing the image of a distant object on a screen placed 20 cm from the device on the same side as the object. The device 'X' is
- (a) Concave lens of focal length 10 cm
 - (b) Convex lens of focal length 20 cm
 - (c) Concave mirror of focal length 10 cm
 - (d) Concave mirror of focal length 20 cm

OR

Which of the following can make a parallel beam of light when light from a point source is incident on it?

- (a) Concave mirror as well as convex lens
 - (b) Convex mirror as well as concave lens
 - (c) Two plane mirrors placed at 90° to each other
 - (d) Concave mirror as well as concave lens
9. Name the physical quantity which is same in all the resistors when they are connected in series.

OR

Should the resistance of a voltmeter be low or high?

Sample Question Paper - 2



13. What is fertilisation? Where does it occur in a human female?

OR

What is micturition?

Directions: For question numbers 14 and 16, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- (a) Both A and R are true and R is correct explanation of the assertion.
- (b) Both A and R are true but R is not the correct explanation of the assertion.
- (c) A is true but R is false.
- (d) A is false but R is true

14. Assertion (A) : To dilute concentrated sulphuric acid water is added to the acid slowly.

Reason (R) : A lot of heat energy will be given out in the dilution of concentrated sulphuric acid.

15. Assertion (A) : The resistivity of conductor increases with the increasing of temperature.

Reason (R) : The resistivity is the reciprocal of the conductivity.

16. Assertion (A) : Plasmodium reproduces by multiple fission.

Reason (R) : Multiple fission is a type of asexual reproduction.

Directions : Q. No 17 - 20 contain five sub-parts each. You are expected to answer any four subparts in these questions.

18. Read the following and answer any four questions.

A student fixes a sheet of white paper on a drawing board. He places a bar magnet in the centre of it. He sprinkles some iron filings uniformly around the bar magnet. Then he taps the board gently and observes that the iron filings arrange themselves in a particular pattern.

(a) Why do the iron filings arrange in a pattern?

- (i) Due to force exerted by the magnet within its magnetic field.
- (ii) Due to force exerted by the magnet outside the magnetic field.
- (iii) Due to pressure of magnetic field.
- (iv) Due to gravitational force.

(b) The lines along which the iron filings align represent _____. It moves from _____.

- (i) Gravitational force, North to South pole
- (ii) Magnetic field lines, South to North pole
- (iii) Gravitational force, South to North pole
- (iv) Magnetic field lines, North to South pole

(c) What does the crowding of iron filings at the end of the magnet indicate?

- (i) Magnetic field is weaker near the poles of the magnet.
- (ii) Magnetic field is strongest near the poles of the magnet.
- (iii) Magnetic field is neither weaker nor strongest near the poles of the magnet.
- (iv) None of these

(d) Which of the following statements is correct about magnetic field strength?

- (i) Closer the lines, more will be the strength and farther the lines, lesser will be the field strength.
- (ii) Closer the lines, less will be the strength and farther the lines, more will be the field strength.
- (iii) Magnetic field strength is same everywhere.
- (iv) None of these

Sample Question Paper - 2

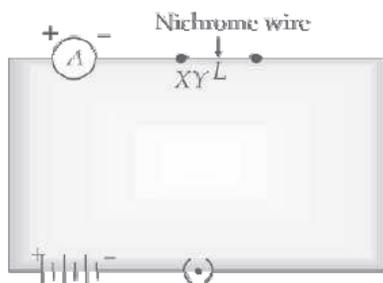


(e) Which of these is not a source of magnetic field?

- (i) Magnet
- (ii) Moving charges
- (iii) Electric current
- (iv) Battery

19. Read the following and answer any four questions.

In the given circuit, connect a nichrome wire of length 'L' between points X and Y and note the ammeter reading.



(a) When this experiment is repeated by inserting another nichrome wire of the same thickness but twice the length ($2L$), what changes are observed in the ammeter reading ?

- (i) Ammeter reading will become half
- (ii) Ammeter reading will double.
- (iii) Ammeter reading will increase three times.
- (iv) Ammeter reading will become three-fourth.

(b) State the changes that are observed in the ammeter reading if we double the area of cross section without changing the length in the above experiment.

Justify your answer in both the cases.

- (i) Ammeter reading will become half.
- (ii) Ammeter reading decreases two times
- (iii) Ammeter reading decreases three-fourth.
- (iv) None of these

Sample Question Paper - 2



(c) In a circuit if two resistors of $5\ \Omega$ and $10\ \Omega$ are connected in series. Compare the current passing through the two resistors.

- (i) Current will remain same.
- (ii) Current will increase 2 times.
- (iii) Current will decrease 2 times.
- (iv) None of these.

(d) The instrument used to measure current is _____.

- (i) Voltmeter
- (ii) Galvanometer
- (iii) Potometer
- (iv) Ammeter

(e) "Potential difference between points A and B in an electric field is $1\ \text{V}$ ". Explain the above statement.

20. Read the given passage and answer any four questions.

The activities of man had adverse effects on all forms of living organisms in the biosphere. Unlimited exploitation of nature by man disturbed the delicate ecological balance between the living and non-living components of the biosphere. The unfavorable conditions created by man himself threatened the survival not only of him but also of the entire living organisms on the mother earth. One of your classmates is an active member of 'Eco club' of your school which is creating environmental awareness amongst the school students, spreading the same in the society and also working hard for preventing environmental degradation of the surroundings.

(a) It is necessary to conserve our environment. Which of these is the reason to conserve our environment?

- (i) To save water, air and soil from pollution.
- (ii) To maintain ecological balance.
- (iii) To save ozone layer
- (iv) All of these

Sample Question Paper - 2



(b) The green and blue dustbin signifies for:

- (i) Biodegradable waste and non-biodegradable waste respectively.
- (ii) Non-biodegradable waste and biodegradable waste respectively.
- (iii) Eco-friendly waste
- (iv) Domestic waste only

(c) Why are plastics difficult to recycle?

- (i) Because it is a very hard material
- (ii) Because of the different sizes of plastic
- (iii) Because it is very adhesive in its nature
- (iv) Because of different types of polymer resins

(d) In the following groups of materials, which group(s) contains only non-biodegradable items?

- | | |
|---------------------------------|--------------------------------|
| (I) Wood, paper, leather | (II) Polythene, detergent, PVC |
| (III) Plastic, detergent, grass | (IV) Plastic, bakelite, DDT |
| (i) (III) | (ii) (IV) |
| (iii) (I) and (III) | (iv) (II) and (IV) |

(e) Which of these non-biodegradable wastes generated daily in kitchen can be recycled?

- | | |
|-----------------------|-------------------------|
| (i) Polythene bags | (ii) Plastic containers |
| (iii) Vegetable waste | (iv) Both (i) and (ii) |

Section - B

21. State the meaning of strong acids and weak acids. Give one example of each.

22. 1g of copper powder was taken in a China dish and heated. What change takes place on heating?

Sample Question Paper - 2



23. When hydrogen is passed over this heated substance, a visible change is seen in it. Give the chemical equations of reactions.
24. Name one nitrogenous waste present in urine. What is the basic filtration unit of kidney called?
25. List four methods of contraception used by humans?

OR

Justify the following statement : "The use of contraceptive methods has a direct effect on the health and prosperity of a family."

26. On entering in a medium from air, the speed of light becomes half of its value in air. Find the refractive index of that medium with respect to air.

OR

State one difference between Kilowatt and Kilowatt hour? Express 1 kWh in joules.

Section - C

27. Identify the acid and the base from which sodium chloride is obtained. Which type of salt is it? When is it called rock salt? How is rock salt formed?

OR

Give reason why carbon can neither form C^{4+} cations nor C^{4-} anions, but forms covalent compounds. Also, state the reason to explain why covalent compounds are bad conductors of electricity and have low melting and boiling points?

Sample Question Paper - 2



- 28.** (a) For the preparation of cakes, baking powder is used. If at home your mother uses baking soda instead of baking powder, how will it affect the taste of the cake and why ?
- (b) How is baking soda be converted into baking powder?
- (c) What makes the cake soft and spongy?
- 29.** A variegated leaf with green and yellow patches is used for an experiment to prove that chlorophyll is required for photosynthesis. Before the experiment, the green portions (A), and the pale yellow portions (B), are observed. What will be the colour of 'A' just before and after the starch test? Also write the equation of photosynthesis and mark, as well as validate, from which molecule the byproduct is obtained?
- 30.** In a pea plant, the trait of flowers bearing purple colour (PP) is dominant over white colour (pp). Explain the inheritance pattern of F₁ and F₂ generations with the help of a cross following the rules of inheritance of traits. State the visible characters of F₁ and F₂ progenies ?
- 31.** Draw a ray diagram to show the path of the reflected ray in each of the following cases. A ray of light incident on a convex mirror.
- (i) Strikes at its pole making an angle θ from the principal axis.
- (ii) Is directed towards its principal focus.
- (iii) Is parallel to its principal axis.
- 32.** Resistance of a wire of 0.01 cm radius is 10 Ω . If the resistivity of the material of the wire is 50×10^{-8} W.m, find the length of the wire.

Sample Question Paper - 2



- 33.** What is a solenoid? Draw the pattern of magnetic field lines of
- a current carrying solenoid and
 - a bar magnet. List two distinguishing features between the two fields?

Section - D

- 34.**(a) List in tabular form any three chemical properties on the basis of which metals and nonmetals are differentiated.
- (b) State two ways to prevent the rusting of iron.
- 35.**(a) Draw a diagram of an excretory unit of a human kidney and label the following :
- Bowman's capsule, Glomerulus, Collecting duct, Renal artery.
- Write the important function of the structural and functional unit of kidney.
 - Write any one function of an artificial kidney.

OR

- Draw the diagram of cross section of a leaf and label the following parts:
(a) chloroplast (b) cuticle
 - A gas is released during photosynthesis. Name the gas and also state the way in which the gas is evolved.
 - In certain group of plants, stomata remain closed during day. How is food synthesized by such plants? Also name them.
- 36.** An object is placed at a distance of 30 cm from a concave lens of focal length 30cm.
- Use lens formula to determine the distance of the image from the lens.
 - List four characteristics of the image (nature, position, size, erect/inverted) in this case.
 - Draw a labelled diagram to justify your answer of part (ii).

Sample Question Paper - 2



OR

(i) A lens produces a magnification of -0.5 . Is this a converging or diverging lens? If the focal length of the lens is 6 cm, draw a ray diagram showing the image formation in this case.

(ii) A girl was playing with a thin beam of light from a laser torch by directing it from different directions on a convex lens held vertically. She was surprised to see that in a particular direction, the beam of light continues to move along the same direction after passing through the lens. State the reason for her observation. Draw a ray diagram to support your answer.