

Self Assessment Paper

SECTION A

1. We prefer a convex as a rear view mirror in vehicles. Why? 1
2. What is the function of galvanometer in a circuit? 1

OR

AI What is electric power? State its SI unit.

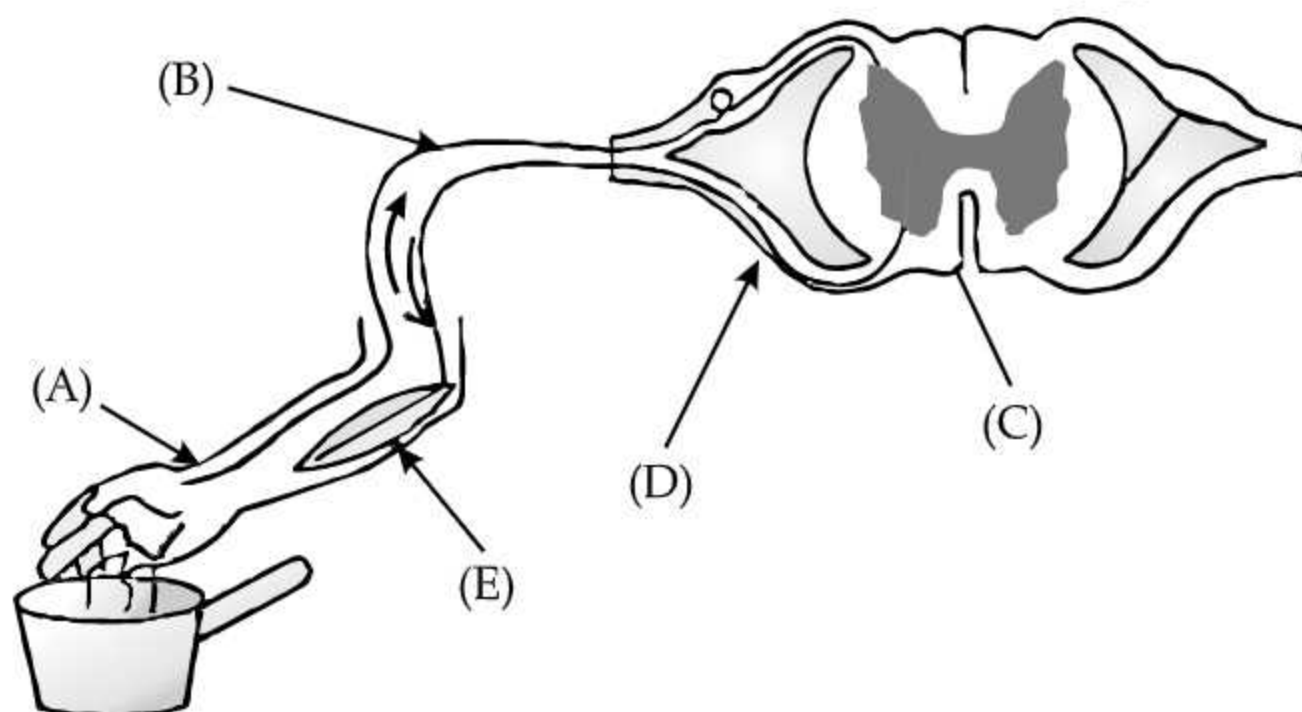
3. Answer question numbers 3(a) - 3(d) on the basis of your understanding of the following paragraph and the related studied concepts.

Sohan went door to door posing as a goldsmith. He promised to bring back the glitter of old and dull gold ornaments. An unsuspecting lady gave a set of gold bangles to him, which he dipped in a particular solution. The bangles sparkled like new but their weight was reduced drastically. The lady was sad but after a futile argument, the man beat a hasty retreat.

- (a) Which of the following is used for dissolution of gold?

(i) Hydrochloric acid	(ii) Sulphuric acid
(iii) Nitric acid	(iv) Aqua regia
- (b) The composition of aqua-regia is :
 - (i) Dil. HCl : Conc. HNO₃ 3 : 1
 - (ii) Conc. HCl : Dil. HNO₃ 3 : 1
 - (iii) Conc. HCl : Conc. HNO₃ 3 : 1
 - (iv) Dil. HCl : Dil. HNO₃ 3 : 1
- (c) Why the weight of the bangle was reduced drastically?
- (d) Aqua-regia is a strong oxidizing agent. (True or False) 4

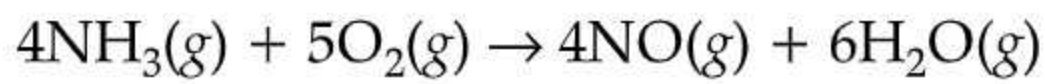
4. Study the given diagram of reflex arc and answer the following questions.



- (a) Give an example of reflex action.
- (b) Name the parts labelled A and C.
- (c) Write the functions of B and E.
- (d) The correct path of reflex action is
 - (i) Receptors → Sensory neuron → Spinal cord → Motor neuron → Effector
 - (ii) Receptors → Motor neuron → Spinal Cord → Sensory neuron → Effector
 - (iii) Effector → Sensory neuron → Brain → Motor neuron → Receptors
 - (iv) Effector → Motor neuron → Brain → Sensory neuron → Receptors4

5. The following reaction is an example of a

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- (i) Displacement reaction
- (ii) Combination reaction
- (iii) Redox reaction
- (iv) Neutralisation reaction

- (a) (i) and (iv)
- (b) (ii) and (iii)
- (c) (i) and (iii)
- (d) (iii) and (iv)

OR

Pentane has the molecular formula C_5H_{12} . It has :

- (a) 5 covalent bonds
- (b) 12 covalent bonds
- (c) 16 covalent bonds
- (d) 17 covalent bonds

6. According to Mendeleev's Periodic Law, the elements were arranged in the periodic table in the order of :

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- (a) increasing atomic number
- (b) decreasing atomic number
- (c) increasing atomic masses
- (d) decreasing atomic masses

7. Which is the first enzyme to mix with food in the digestive tract?

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- (a) Pepsin
- (b) Cellulase
- (c) Amylase
- (d) Trypsin

8. The gap between two neurons is called a :

1

- (a) dendrite.
- (b) synapse.
- (c) axon.
- (d) impulse.

9. You are given water, mustard oil, glycerine, and kerosene. In which of these media, a ray of light incident obliquely at some angle would bend the most?

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- (a) Kerosene
- (b) Water
- (c) Mustard oil
- (d) Glycerine

10. A full-length image of a distant tall building can definitely be seen by using :

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- (a) a concave mirror.
- (b) a convex mirror and plane mirror.
- (c) only plane mirror.
- (d) both concave as well as plane mirror.

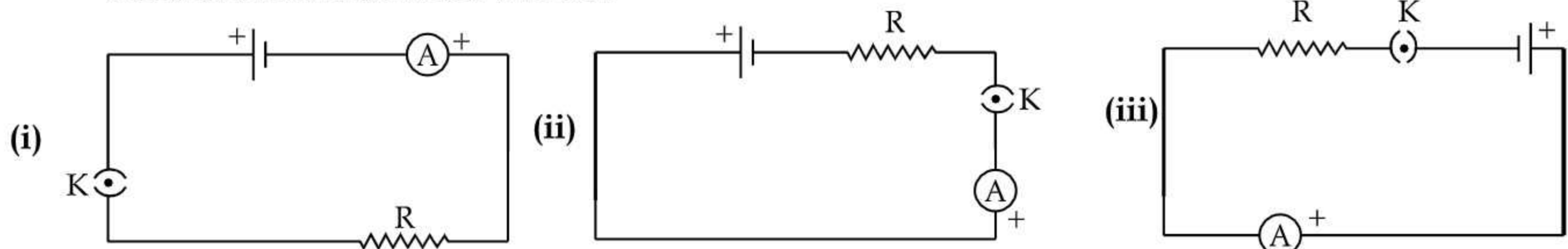
11. A person cannot see distinctly objects kept beyond 2 m. This defect can be corrected by using a lens of power :

1

- (a) +0.5 D.
- (b) -0.5 D.
- (c) +0.2 D.
- (d) -0.2 D.

12. A cell, a resistor, a key, and ammeter are arranged as shown in the circuit diagrams. The current recorded in the ammeter will be :

1



- (a) maximum in (i).
- (b) maximum in (ii).
- (c) maximum in (iii).
- (d) the same in all the cases.

For question numbers 13 and 14, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below :

- (i) Both A and R are true and R is correct explanation of the assertion.
- (ii) Both A and R are true but R is not the correct explanation of the assertion.
- (iii) A is true but R is false.
- (iv) A is false but R is true.

13. **Assertion (A)** : In human heart, there is no mixing of oxygenated and deoxygenated blood.

Reason (R) : Valves are present in the heart which allows the movement of blood in one direction only.

OR

Assertion (A) : *Amoeba* reproduces by Binary fission. 1

Reason (R) : All unicellular organisms reproduce asexually.

14. **Assertion (A)** : When white light or sunlight passes through a prism, it splits up into constituent colours. 1

Reason (R) : The phenomenon is called dispersion and arises due to the fact that refractive index of prism is different for different colours of light.

SECTION B

15. Name two metals which do not corrode easily. Give an example in each of the following case to support that : 3

- (i) Corrosion of some metals is an advantage.
- (ii) Corrosion of a metal is a serious problem.

16. 1 g of solid sodium chloride is taken in a clean and dry test tube and 2 mL of conc. sulphuric acid is added to it. If the gas evolved is tested first with dry and then with wet blue litmus paper, in which case will the litmus paper change colour ? Give reason for your answer. What inference can be drawn about the nature of the evolved gas ? Support your answer with chemical equation for the reaction. 3

OR

State reason for the following :

- (i) Non-metals cannot displace hydrogen from the acids.
- (ii) Hydrogen is not a metal, yet it is placed in the activity series of metals.
- (iii) Aluminium is more reactive than iron, yet its corrosion is less than that of iron.

[AI] 17. What is meant by isomers ? Draw the structure of two isomers of butane, C_4H_{10} . Explain why we cannot have isomers of first three members of alkane series. 3

[AI] 18. List any four steps involved in sexual reproduction and write its two advantages. 3

19. (i) Mention the site of exchange of material between the blood and surrounding cells. 3
- (ii) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide.

OR

[AI] Explain with an example for each, how the following provides evidences in favour of evolution in organisms :

- (i) Homologous organs
- (ii) Analogous organs
- (iii) Fossils.

[AI] 20. What is meant by power of a lens ? Write the SI unit. A student uses a lens of focal length 40 cm and another of -20 cm. Write the nature and power of each lens. 3

- AI** 21. Calculate the total cost of running the following electrical devices in the month of September, if the rate of 1 unit of electricity is ₹ 6.00. 3
- (i) Electric heater of 1000 W for 5 hours daily.
 - (ii) Electric refrigerator of 400 W for 10 hours daily.
- AI** 22. List the factors on which the magnetic field produced by a current carrying straight conductor depends. State the rule which gives the direction of its magnetic field. Draw the pattern of magnetic field lines due to a straight current carrying conductor. 3
23. If energy can neither be created nor destroyed, explain with an example why we should worry about our energy resources ? 3

OR

Suggest three ways to maintain a balance between environment and development to survive.

24. The flow of energy between various components of the environment has been extensively studied. Give an outline of the findings. 3

SECTION C

25. (i) Define pH scale. Draw a figure showing variation of pH with the change in concentration of $H^+(aq)$ and $OH^-(aq)$ ions.
- (ii) Mention the range of pH of acidic solution, basic solution and neutral solution respectively. 5

Write balanced chemical equations for the following statements :

- (i) Bleaching powder is kept open in air.
 - (ii) Blue crystals of copper sulphate are heated.
 - (iii) Chlorine gas is passed through dry slaked lime.
 - (iv) Carbon dioxide gas is passed through lime water.
 - (v) NaOH solution is heated with zinc granules.
26. Atoms of eight elements A, B, C, D, E, F, G and H have the same number of electronic shells but are different in their outermost shells. It was found that elements A and G combine to form an ionic compound which can also be extracted from sea water.

Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of elements D is almost neutral.

Answer the following questions based on the information given here in :

- (i) To which group or period of the periodic table do the listed elements belong ?
- (ii) Which one of the eight elements is likely to be a noble gas ?
- (iii) Which one of the eight elements would have the largest atomic radius ?
- (iv) Which two elements amongst these are likely to be the non-metals ?
- (v) Which one of these eight elements is likely to be a semi-metal or metalloid ? 5

AI 27. (a) State in brief the functions of the following organs in the human female reproductive system :

Ovary, Fallopian tube, Uterus

(b) What is menstruation ? Why does it occur ?

5

OR

Name the phenomenon that governs the following :

(i) Green beetles living in green bushes are not eaten by the crows.

(ii) Number of blue beetles in green bushes increases only because the red beetles living there, were trampled by a herd of elephants.

(iii) No 'medium height plants' are obtained in F_1 generation, upon crossing pure tall and dwarf pea plants.

(iv) Tails of mice were surgically removed for several generations, still mice had tails in the following generations.

(v) A migrant beetle reproduces with the local population; as a result genes of migrant beetle enter the new population.

28. (a) State the form in which the following are stored :

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(i) Unused carbohydrates in plants.

(ii) The energy derived from food in humans.

(b) Describe the process of nutrition in *Amoeba* with the help of diagram.

(c) How does *Paramecium* obtain its food ?

AI 29. (i) Define focal length of a spherical lens.

(ii) A divergent lens has a focal length of 30 cm. At what distance should an object of height 5 cm from the optical centre of the lens be placed so that its image is formed 15 cm away from the lens ? Find the size of the image also.

(iii) Draw a ray diagram to show the formation of image in the above situation.

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OR

(a) Draw a ray diagram to explain the term angle of deviation.

(b) Why do the component colour of incident white light split into a spectrum while passing through a glass prism ? Explain.

(c) Draw a labelled ray diagram to show the formation of a rainbow.

30. The magnetic field lines associated with current carrying straight conductor is in anti-clockwise direction. If the conductor was held horizontally along east-west direction, what is the direction of current through it ? Explain it with the help of diagram. Name and state the rule applied to determine the direction of magnetic field. If the conductor is held vertically and current flows from north to south, what will be the direction of magnetic field lines. Draw diagram.

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