

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

## TEST BOOKLET NO-25011

### MAIN PAPER- GENERAL SCIENCE

Time : :01:00 hrs

Total Marks: 50

#### INSTRUCTIONS TO CANDIDATES

*Read the instructions carefully before answering the questions: -*

1. This Test Booklet consists of 16 (sixteen) pages and has 50 ( Fifty ) items (questions).
2. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
3. Please note that it is the candidate's responsibility to fill in the Roll Number and other required details carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet and the Separate Answer Booklet. Any omission/discrepancy will render the OMR Answer Sheet and the Separate Answer Booklet liable for rejection.
4. Do not write anything else on the OMR Answer Sheet except the required information. Before you proceed to mark in the OMR Answer Sheet, please ensure that you have filled in the required particulars as per given instructions.
5. Use **only Black Ball Point Pen** to fill the OMR Answer Sheet.
6. This Test Booklet is divided into 2 (two) parts - **Part - I & Part - II**
7. Both parts are **Compulsory**.
8. **Part-I consists of Multiple Choice-based Questions.** The answers to these questions have to be marked in the OMR Answer Sheet provided to you.
9. **Part - II consists of Conventional Questions.** The answers to these questions have to be written in the **Separate Answer Booklet** provided to you.
10. In Part-I, each item (question) comprises of 04 (four) responses (answers). You are required to select the response which you want to mark on the OMR Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
11. After you have completed filling in all your responses on the OMR Answer Sheet and the Answer Booklet(s) and the examination has concluded, you should hand over to the Invigilator **only the OMR Answer Sheet and the Answer Booklet(s)**. You are permitted to take the Test Booklet with you.
12. **Penalty for wrong answers in Multiple Choice-based Questions:**  
THERE WILL BE **PENALTY** FOR WRONG ANSWERS MARKED BY A CANDIDATE.
  - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to the question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to the question.
  - (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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## PART -I

### MULTIPLE CHOICE BASED QUESTIONS

Instructions for Questions 1 to 34:

- Choose the correct answer for the following questions
- Each question carries 2 marks

(34x 1 = 34 marks)

**Q.1** The kidneys in human beings are a part of the system for

- A) Nutrition
- B) Excretion
- C) Respiration
- D) Transportation

**Q.2** Which part of the alimentary canal joins the buccal cavity to the stomach?

- A) Pharynx
- B) Small intestine
- C) Liver
- D) Oesophagus

**Q.3** A 24 V potential difference is applied across 6ohm resistors. The current in resistor is

- A) 1 A
- B) 4 A
- C) 16 A
- D) 36 A

**Q.4 Assertion:** Longer wires have greater resistance and the smaller wires have lesser resistance.

**Reason:** Resistance is inversely proportional to the length of the wire.

- A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C) Assertion (A) is true but reason (R) is false.
- D) Assertion (A) is false but reason (R) is true.



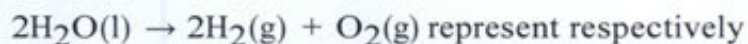
**Q.5 Assertion:** Tungsten metal is used for making filaments of incandescent lamps. **Reason:** The melting point of tungsten is very low.

- A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C) Assertion (A) is true but reason (R) is false.
- D) Assertion (A) is false but reason (R) is true

**Q.6** In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?

- A)  $2\text{H}_2(\ell) + \text{O}_2(\ell) \rightarrow 2\text{H}_2\text{O}(\text{g})$
- B)  $2\text{H}_2(\text{g}) + \text{O}_2(\ell) \rightarrow 2\text{H}_2\text{O}(\ell)$
- C)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\ell)$
- D)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$

**Q.7** The following examples of decomposition reactions



- A) thermal decomposition, electrolytic decomposition
- B) thermal decomposition, thermal decomposition
- C) photodecomposition, electrolytic decomposition
- D) photodecomposition, thermal decomposition

**Q.8** A tesla is equivalent to a:

- A) Newton per coulomb
- B) Newton per ampere-meter
- C) Ampere per newton
- D) Newton per ampere-second

**Q.9** Name the hormones which together are referred to as gonadotrophic hormones.

- A) Oxytocin and ADH
- B) FSH and LH
- C) Epinephrine and Norepinephrine
- D) Progesterone and Oestrogen

**Q.10** Milk of lime is

- A)  $\text{Ca(OH)}_2$
- B)  $\text{Mg(OH)}_2$
- C)  $\text{NH}_4\text{OH}$
- D)  $\text{Ba(OH)}_2$

**Q.11** Which of the following can be used as an olfactory indicator?

- A) Cloth strips treated with onion
- B) Vanilla essence
- C) Clove oil
- D) All the above

**Q.12** Choose the correct statement.

- A) Sun is considered as an inexhaustible source of energy.
- B) There is infinite storage of fossil fuel inside the Earth.
- C) Hydro and wind energy plants are non polluting sources of energy.
- D) Waste from a nuclear power plant can be easily disposed off.

**Q.13** Hydro power plants convert the \_\_\_\_\_ energy of falling water into electricity.

- A) Kinetic energy
- B) Potential energy
- C) Thermal energy
- D) Chemical energy

**Q.14 Assertion (A):** The center of curvature is not a part of the mirror. It lies outside its reflecting surface.

**Reason (R):** The reflecting surface of a spherical mirror forms a part of a sphere. This sphere has a center.

- A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C) Assertion (A) is true but reason (R) is false.
- D) Assertion (A) is false but Reason (R) is true.

**Q.15 Assertion:** Solar cooker is a device used to cook food by utilising the energy radiated by the Sun.

**Reason:** Solar cooker can be used to cook food on cloudy days and during night.

- A) Both assertion and reason are true and reason is the correct explanation of Assertion.
- B) Both assertion and reason are true but reason is not the correct explanation of assertion.
- C) Assertion is true but reason is false.
- D) Both Assertion and Reason are false.

**Q.16** Which one of the following is an artificial ecosystem?

- A) Pond
- B) Crop field
- C) Lake
- D) Forest

**Q.17** In a food chain, the third trophic level is always occupied by-

- A) carnivores
- B) herbivores
- C) decomposers
- D) producers



**Q.18** Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called-

- A) decomposers
- B) producers
- C) herbivores
- D) carnivores

**Q.19 Assertion (A):** Carbohydrate digestion mainly takes place in small intestine.

**Reason (R):** Pancreatic juice contains the enzyme lactase.

- A) Both Assertion (A) and Reason (R) are True, and Reason (R) is the correct explanation of Assertion (A).
- B) Both Assertion (A) and Reason (R) are True, but Reason (R) is not the correct explanation of Assertion (A).
- C) Assertion (A) is True, but Reason (R) is False.
- D) Assertion (A) is False, but Reason (R) is True.

**Q.20** The wire with red insulation is:

- A) Earth wire
- B) Neutral wire
- C) Live wire
- D) None

**Q.21 Assertion:** A current carrying wire deflects a magnetic needle placed near it.

**Reason:** A magnetic field exists around a current carrying wire.

- A) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
- B) Both assertion and reason are true, but reason is not the correct explanation of the assertion.
- C) Assertion is true, but reason is false.
- D) Assertion is false, but reason is true

**Q.22 Assertion:** If an electron is not deflected while passing through a certain region of space then only possibility is that there is no magnetic field in this region.

**Reason:** Force is directly proportional to magnetic field applied.

- A) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
- B) Both assertion and reason are true, but reason is not the correct explanation of the assertion.
- C) Assertion is true, but reason is false.
- D) Assertion is false, but reason is true.

**Q.23 Assertion:** When current is represented by a straight line, the magnetic field will be circular.

**Reason:** According to Fleming's left-hand rule, direction of force is parallel to the magnetic field.

- A) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
- B) Both assertion and reason are true, reason is not the correct explanation of the assertion.
- C) Assertion is true, but reason is false.
- D) Assertion is false, but reason is true.

**Q.24 Assertion:** Alternating Current is used in household supply.

**Reason:** AC electric power can be transmitted over long distance without much loss of energy.

- A) Both Assertion (A) and Reason (R) are True, and Reason (R) is the correct explanation of Assertion (A).
- B) Both Assertion (A) and Reason (R) are True, but Reason (R) is not the correct explanation of Assertion (A).
- C) Assertion (A) is True, but Reason (R) is False.
- D) Assertion (A) is False, but Reason (R) is True.

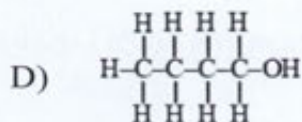
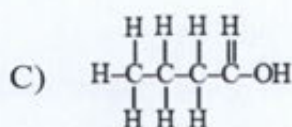
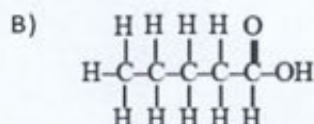
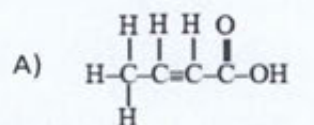
**Q.25** Carbon exists in the atmosphere in the form of:

- A) Carbon monoxide only
- B) Carbon monoxide in traces and carbon dioxide
- C) Carbon dioxide only
- D) Coal

**Q.26** Which of the following is the correct representation of electron dot structure of nitrogen?

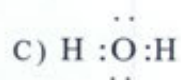
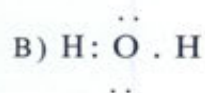
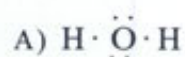
- A)  $\ddot{\text{N}} : \ddot{\text{N}} :$
- B)  $\dot{\text{N}} : \dot{\text{N}} :$
- C)  $\ddot{\text{N}} : \ddot{\text{N}} :$
- D)  $:\text{N} : : \text{N}:$

**Q.27** The correct structural formula of butanoic acid is





**Q.28** The correct electron dot structure of a water molecule is



**Q.29** Which of the following metals are obtained by electrolysis of their chlorides in molten state?

(1) Na(2) Ca(3) Fe(4) Cu

A) (1) and (4)

B) (3) and (4)

C) (1) and (3)

D) (1) and (2)

**Q.30** Hematite and bauxite ores are-

A) Oxide ore

B) Sulphide ore

C) Carbonate ore

D) All of these

**Q.31** The heteroatoms present in  $\text{CH}_3 - \text{CH}_2 - \text{O} - \text{CH}_2 - \text{CH}_2\text{Cl}$  are

1. Oxygen

2. Carbon

3. Hydrogen

4. Chlorine

A) 1 and 2

B) 2 and 3

C) 3 and 4

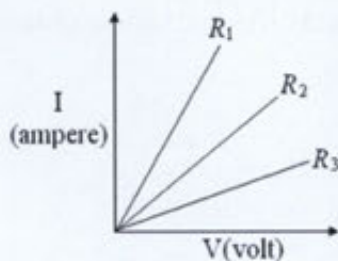
D) 1 and 4

**Q.32 Assertion (A):** Some human babies have a tail.

**Reason (R):** This is just a freak of nature.

- A) Both A and R are true and R is the correct explanation of A
- B) Both A and R are true, but R is not the correct explanation of A
- C) A is true, but R is false
- D) A is false, but R is true

**Q.33** A student carries out an experiment and plots the  $V-I$  graph of three samples of nichrome wire with resistance  $R_1$ ,  $R_2$  and  $R_3$  respectively (Figure). Which of the following is true?



- A)  $R_1 > R_2 = R_3$
- B)  $R_1 > R_2 > R_3$
- C)  $R_3 > R_2 > R_1$
- D)  $R_2 > R_3 = R_1$

**Q.34 Assertion (A):** Non-metallic oxides are acidic in nature.

**Reason (R):** Non-metallic oxides react with base to produce a salt and water.

- A) Both Assertion (A) and Reason (R) are True, and Reason (R) is the correct explanation of Assertion (A).
- B) Both Assertion (A) and Reason (R) are True, but Reason (R) is not the correct explanation of Assertion (A).
- C) Assertion (A) is True, but Reason (R) is False.
- D) Assertion (A) is False, but Reason (R) is True.

## PART -II

### CONVENTIONAL QUESTIONS

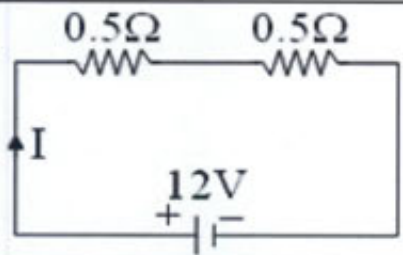
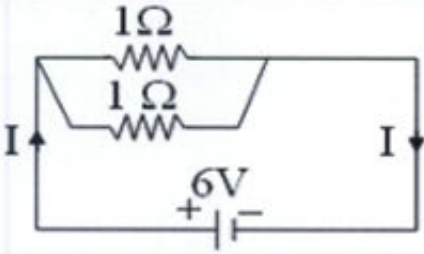
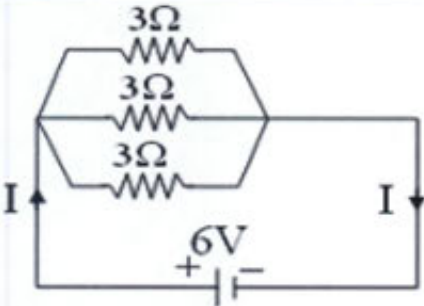
The answers to these questions have to be written in the **Separate Answer Booklet** provided to you.

Instructions for Questions 35 to 50:

- All questions are compulsory
- Each question carries 1 marks

(16 x 1 = 16 marks)

**Q.35 Direction:** The following question has four statements (i, ii, iii and iv) given in column I and 4 statements (p, q, r and s) in column II. Any given statement in column I can have correct matching with one or more statements (s) given in column II. Match the entries in column I with entries in column II.

	Column I	Column II
(i)		<p>(p) <math>R_{eq} = 1\ \Omega</math>, <math>I = 12\ \text{A}</math></p>
(ii)		<p>(q) <math>\propto \text{Length}</math></p>
(iii)	Resistance	<p>(r) <math>R_{eq} = 1\ \Omega</math>, <math>I = 6\ \text{A}</math></p>
(iv)		<p>(s) <math>\propto \frac{1}{\text{Area}}</math></p>



**Q.36** Match the entries of column I with appropriate entries of column II.

Column I (Reaction)		Column II (Nature of gas evolved)	
(i)	$\text{CaCO}_3 + \text{HCl acid}$	(a)	Combustible
(ii)	$\text{FeS} + \text{HCl acid}$	(b)	Rotten egg like smell
		(c)	Turns lime water milky
		(d)	Supports combustion

**Q.37** Match the entries of column I with appropriate entries of column II.

Column I (Property )		Column II (Metal )	
(i)	Best conductor of heat	A	Silver
(ii)	Worst Conductor of heat	B	Tungsten
		C	Lead
		D	Copper

**Q.38** Match the entries of column I with appropriate entries of column II.

Column I (Metal )		Column II (Ore)	
(i)	Iron	A	Calamine
(ii)	Lead	B	Haematite
		C	Galena
		D	Cinnabar

**Q.39** Match the material given in column A with its property in column B

Column A		Column B	
(i)	Glass	A	Super conductors
(ii)	Germanium	B	Conductor
(iii)	Aluminium	C	Semi conductor
(iv)	Mercury at 4.2 K	D	Insulator

**Q.40.** Match the following with correct response

Column I		Column II	
(i)	Largest part of brain	A	Cranial meninges
(ii)	Protective covering of brain	B	Spinal cord
(iii)	Forebrain	C	Olfactory lobe
(iv)	Cerebellum	D	Cerebrum

**Q.41.** Match the reactions given in Column A with the names given in Column B.

Column A		Column B	
(i)	$\text{CH}_3\text{OH} + \text{CH}_3\text{COOH} \xrightarrow{\text{H}^+} \text{CH}_3\text{COOCH}_3 + \text{H}_2\text{O}$	1	Addition Reaction
(ii)	$\text{CH}_2 = \text{CH}_2 + \text{H}_2 \xrightarrow{\text{Ni}} \text{CH}_3 - \text{CH}_3$	2	Substitution Reaction
(iii)	$\text{CH}_4 + \text{Cl}_2 \xrightarrow{\text{Sunlight}} \text{CH}_3\text{Cl} + \text{HCl}$	3	Neutralisation Reaction
(iv)	$\text{CH}_3\text{COOH} + \text{NaOH} \longrightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O}$	4	Esterification Reaction

**Q.42.** Match the following columns.

Column I		Column II	
(i)	Homologues	A	$\text{CH}_3\text{CH}_2\text{CHO}$ and $\text{CH}_3\text{COCH}_3$
(ii)	Chain isomers	B	$\text{CH}_3\text{CH}_2\text{CH}_2\text{COCH}_3$ and $\text{CH}_3\text{CH}_2\text{COCH}_2\text{H}_3$
(iii)	Position isomers	C	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$ and $\text{CH}_3-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_3$
(iv)	Functional	D	$\text{CH}_3\text{CH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_3$

**Q.43** How do autotrophs obtain  $\text{CO}_2$  and  $\text{N}_2$  to make their food?

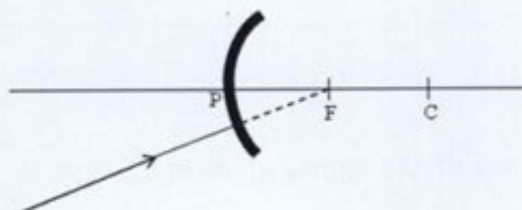
**Q.44** State Ohm's law?

**Q.45** Which component of white light deviates the least?

**Q.46** Which of the following determines the sex of the child: (A) Sperm (B) Egg.

**Q.47** What is the criterion for testing the quality of bleaching powder?

**Q.48** Redraw the given diagram and show the direction of the light ray after reflection from the mirror?



**Q.49** What change will you observe if you test soap with litmus paper (red or blue)?

**Q.50** What is the valency of carbon in  $\text{CH}_3\text{---CH}_3$ ,  $\text{CH}_2 =$  and  $\text{CH} \equiv \text{CH}$ ?

.....X.....