

**Note :** 1. All questions are compulsory.

2. Wherever necessary scientifically correct diagrams and correct labelling should drawn.
3. The numbers to the right of the questions indicate full marks.
4. The answer to every MCQ should be written as shown - Example 1) A. There is no need to write the entire sentence or the words from the option chosen.
5. Answer should be written in blue or black ink.

**Q.1. (A) Choose the correct answer and write the letter of the alphabet of it : 5**

- 1) Oily food kept out for few days gives a bad taste and a bad smell because of .....  
A) Rancidity B) Corrosion C) Displacement D) Heating
- 2) Launching of a rocket is based on Newton's ..... law of motion.  
A) first B) second C) third D) fourth
- 3) The velocity of light in air is ..... m/s.  
A)  $0.3 \times 10^8$  B)  $1.5 \times 10^8$  C)  $3 \times 10^{10}$  D)  $3 \times 10^8$
- 4) ..... has the highest melting point.  
A) Copper B) Zinc C) Iron D) Tungsten
- 5) Which of the following is Low Earth Orbit (LEO) satellite?  
a) International Space Station b) Navigation satellite  
b) Geostationary Satellite d) All of the above

**B) Answer the following : 5**

- 1) Name the following :  
The period with electrons in the shell K, L and M.
- 2) Identify the type of the following reaction of carbon compounds :  
 $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH} \longrightarrow \text{CH}_3\text{-CH}_2\text{-CH}=\text{CH}_2 + \text{H}_2\text{O}$
- 3) Complete the analogy :  
Myopia : Concave lens :: Farsightedness : .....
- 4) Write the full form of the following :  
ISRO
- 5) State whether the following statement is True or False :  
Covalent compounds have high melting and boiling points.

**Q. 2 (A) Give scientific reason : (any TWO)**

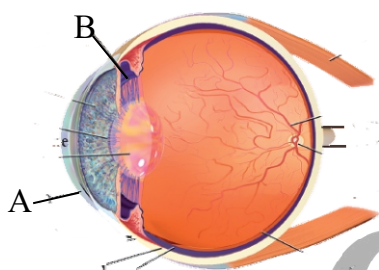
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- 1) Geostationary satellites are not useful for studies of polar regions.
- 2) Sodium is always stored under kerosene.
- 3) Metallic character goes on decreasing while going left to right in a period.

**Q. 2 (B) Answer the following : (any THREE)**

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- 1) Write short note on : Free fall
- 2) Draw an electron dot structure of the following molecules. (Without showing the circles)
  - a) Ethene
  - b) Methanol
- 3) Heat energy is being produced in a resistance in a circuit at the rate of 100 W. The current of 3 A is flowing in the circuit. What must be the value of the resistance?
- 4) Define :
  - a) Oxidation reaction
  - b) Rancidity
- 5) Observe the diagram and answer the following :



- a) Label A and B in the diagram
- b) Explain the function of A

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**Q. 3 Answer the following : (any FIVE)**

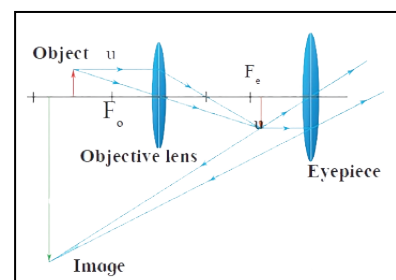
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- 1) An object thrown vertically upwards reaches a height of 500 m. What was its initial velocity? How long will the object take to come back to the earth? Assume  $g = 10 \text{ m/s}^2$
- 2) Match the columns :

Reactants	Products	Types of chemical reaction
a) $\text{MgH}_2$	$\rightarrow \text{Ca(OH)}_2 + \text{heat}$	Endothermic
b) $2\text{H}_2\text{S} + \text{SO}_2$	$\rightarrow \text{Mg} + \text{H}_2$	Oxidation
c) $\text{CaO} + \text{H}_2\text{O}$	$\rightarrow 3\text{S} + 2\text{H}_2\text{O}$	Exothermic
		Redox

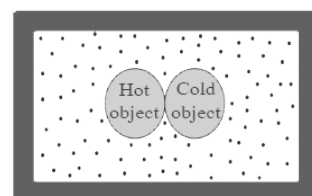
- 3) In reference to the figure, answer the following questions :

- a) In which type of a microscope do you find the lens arrangement as shown in the following diagram?
- b) Write about the working and the use of this microscope.



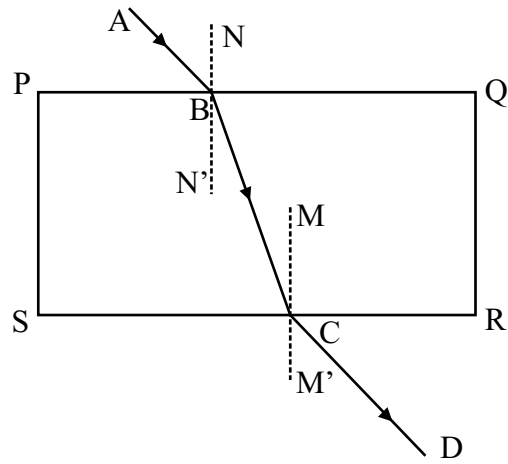
- 4) In reference to the figure, answer the following questions :

- a) What does the figure illustrate?
- b) Explain the temperature changes observed in two objects?
- c) Write the principle behind this concept.



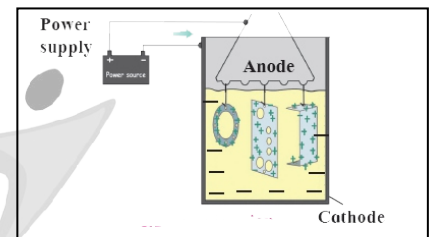
5) Observe the given figure and name the following rays :

- Write the name of ray AB.
- Write the name of ray CD.
- State the laws of refraction of light.



6) State the molecular formula and structural formula of benzene.  
 7) Answer the following questions based on the concept of satellites given in the passage.  
 Currently, there are more than 2,500 man-made satellites orbiting the earth. The satellites are launched with a specific objective in mind pertaining to several uses.

- Name a natural satellite of earth.
  - What is artificial satellite? Name the first artificial satellite.
  - What is the purpose of sending such satellites.
- 8) Observe the following diagram and give answers.
- Name the method of prevention of corrosion.
  - For prevention of which metal this method is used?
  - What is used as Anode in this method?

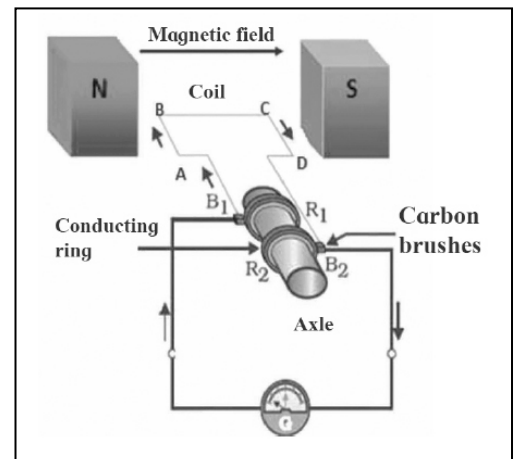


**Q. 4 Answer the following : (any ONE)**

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1) Observe the figure and write the answers to the questions asked.

- Construction of which equipment does the diagram show?
- On which principle does this equipment work?
- According to which law the coil ABCD rotates?
- Write the law in your own words.
- Where is this equipment used?



2) XY Compound formed by X (Atomic number 11) and Y (Atomic number 17) then answer the questions given below.

- Determine the position of the element X and Y in the modern periodic table. 1 mark
- Which type of elements X and Y are metals, nonmetals or metalloids? 1 mark
- From which block the elements X and Y are? 1 mark
- Determine the electronic configuration and valency of these elements. 2 marks

