



SCIENCE-1

Class 10 - Science & Technology - I

Time Allowed: 2 hours

Maximum Marks: 40

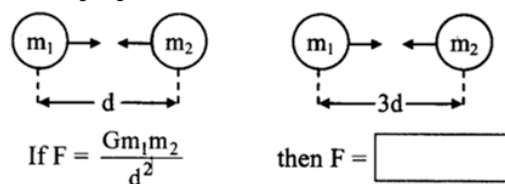
General Instructions:

- All questions are compulsory.
- Use of a calculator is not allowed.
- In case of MCQs., (Q. No. 1 (A)), only the first attempt will be evaluated and given credit.
- For each MCQ, the correct alternative (a), (b), (c), and (d) with subsequent number is to be written as an answer.
For e.g. (i) (a), (ii) (b), (iii) (c)
- Scientifically correct, labelled diagrams should be drawn wherever necessary.

1. [10]
- (a) **Write the correct alternative.**
- i. A laser beam enters from air to soap solution in water then _____. [1]
- a) it travels straight without bending b) it goes away from the normal
- c) it bends towards the normal d) it returns back into air
- ii. Carbonate ores are strongly heated in a limited supply of air to transform them into oxides, this process is called _____. [1]
- a) roasting b) tinning
- c) leaching d) calcination
- iii. According to Mendeleev's periodic law, properties of elements are periodic function of their _____. [1]
- a) atomic masses b) boiling points
- c) atomic numbers d) densities
- iv. _____ has the highest refractive index. [1]
- a) Diamond b) Glass
- c) Air d) Water
- v. The left hand side of a chemical reaction represents _____. [1]
- a) Reactants b) Catalyst
- c) Indicator d) Product
- (b) **Answer the following questions.**
- i. When the incident ray is parallel to the principal axis, the refracted ray does not pass through _____. [1]

the principal focus.

- ii. Rancidity is an oxidation process. [1]
- iii. The frequency of AC is 50 Hz. [1]
- iv. Torch : Concave lens :: Camera : _____ . [1]
- v. Write proper answer in the box: [1]



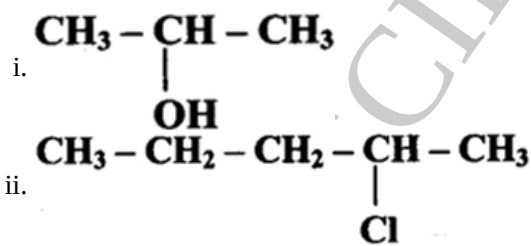
2. [10]

(a) Give scientific reasons. (Any 2)

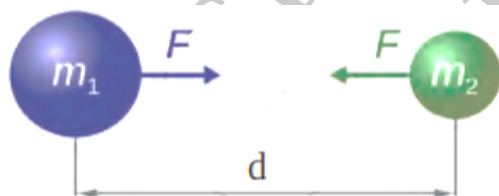
- i. When the gas formed on heating limestone, is passed through freshly prepared lime water, the lime water turns milky. [2]
- ii. Atomic radius goes on increasing down a group. [2]
- iii. Tungsten metal is used to make a solenoid type coil in an electric bulb. [2]

(b) Answer the following questions. (Any 3)

- i. Write the IUPAC names of the following structural formulae: [2]



- ii. Observe the figure and answer the questions: [2]

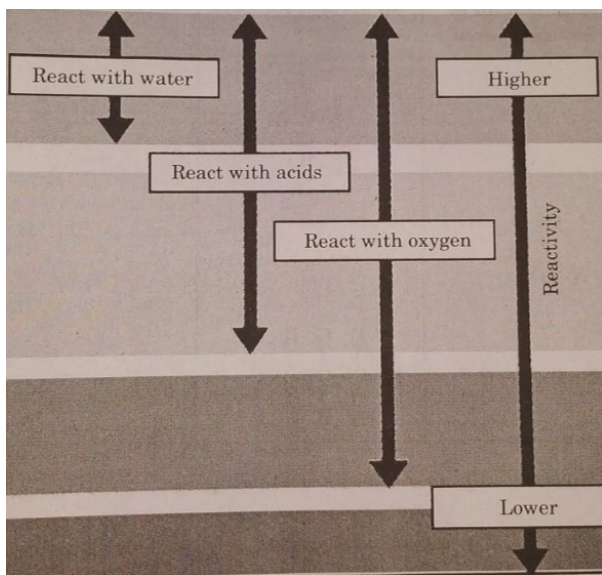


- i. State Newton's universal law of gravitation.
- ii. If the distance between the two bodies is tripled, how will the gravitational force between them change?
- iii. What will happen to gravitational force, if mass of one of the objects is doubled?
- iii. Give one function of each of the following satellites: [2]
 - i. Communication satellite
 - ii. Earth observation satellite
- iv. Draw the image formed by convex lens, if object is placed at $2 F_1$. [2]
- v. If the speed of light in a medium is $1.5 \times 10^8 \text{ m/s}$, what is the absolute refractive index of the medium? [2]

(Speed of light in vacuum = $3 \times 10^8 \text{ m/s}$).

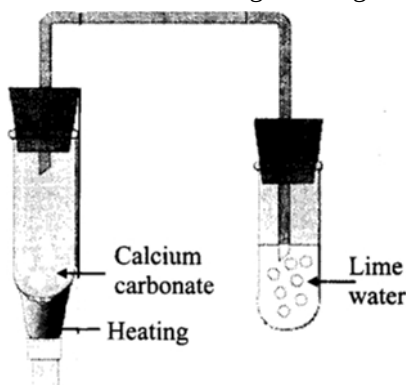
3. Answer the following questions. (Any 5) [15]

- (a) Observe the given figure of reactivity series of metals and answer the following questions: [3]



- i. Name two metals which react with water.
- ii. Name two moderately reactive metals.
- iii. Name the most highly reactive metal and the most less reactive metal.

(b) With reference to the given diagram answer the following questions: [3]



- i. Give type of chemical reaction.
- ii. Give the names of reactants and products.
- iii. Write down the balanced chemical equation.

(c) Two tungsten bulbs of power 50 W and 60 W work on 220 V potential difference. If they are connected in parallel, how much current will flow in the main conductor? [3]

(d) "NaCl is an ionic compound." [3]

- i. Why is NaCl an ionic compound?
- ii. State any two properties of ionic compounds.

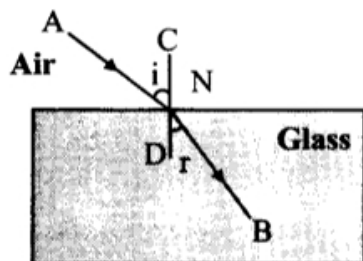
(e) Explain why value of g changes if we go inside the earth. [3]

- (f)
 - i. The atomic number of nitrogen is 7. How many electrons are present in the valence shell of nitrogen?
 - ii. Molecular formula of nitrogen is N_2 . Draw the electron-dot structure and line structure of a nitrogen molecule.

(g) Observe the given figure and answer the following questions: [3]

- i. Name the process represented by the figure.

ii. State the two laws related to the process.



- (h) The orbit of a satellite is exactly 35780 km above the Earth's surface and its tangential velocity is 3.08 km/s . How much time the satellite will take to complete one revolution around the earth? (Radius of the Earth = 6400 km.) [3]

4. Answer the following question. (Any 1) [5]

- (a) State the general properties of ionic compounds. [5]
 (b) Complete the following table: [5]

Sr . No.	Common Name	Structural Formula	IUPAC Name
i.	Ethylene	$CH_2 = CH_2$	_____
ii.	Acetylene	_____	Ethyne
iii.	Acetic acid	$CH_3 - COOH$	_____
iv.	Methyl alcohol	_____	Methanol
v.	_____	$CH_3 - CO - CH_3$	Propan-2-one