

03 Set

CHEMISTRY (CREATIVE)
[According to the Syllabus of 2025]

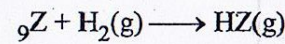
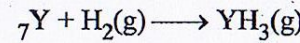
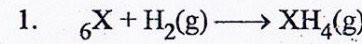
Subject Code :

1	3	7
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Time—2 hours and 35 minutes
Full marks—50

[N.B. The figures in the right margin indicate full marks. Read the stems carefully and answer the associated questions. Answer any five questions.]

Marks



[Here $h = 6.626 \times 10^{-34} m^2kg/s$ and X, Y and Z are used as symbolic.]

- (a) What is called structural formula? 1
- (b) What is meant by hydrolysis reaction? Explain. 2
- (c) Determine the angular momentum of an electron in the last orbit of element 'Z' of the stem. 3
- (d) Analyze the order of rate of diffusion of the produced gas from the reactions of the stem. 4

2. Group \longrightarrow 1 2 16

Period \downarrow 2			Q
3	X		Z
4		Y	

[Here, X, Y, Q and Z are used as symbolic]

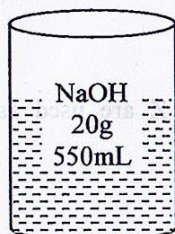
- (a) What is called formula? 1
- (b) What is meant by the atomic number of aluminium is 13? 2
- (c) Explain the bond formation between elements X and Q of the stem. 3
- (d) Analyze the order of atomic size of elements of the stem. 4

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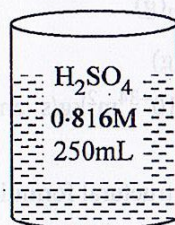


3. (i) $\text{HNO}_3 + \text{KOH} \longrightarrow \text{'X'} + \text{H}_2\text{O}$
- (ii) $\text{Ca(s)} + \text{Ag}_2\text{SO}_4(\text{aq}) \longrightarrow \text{CaSO}_4(\text{aq}) + \text{Ag(s)}$
- (a) What is called molarity? 1
- (b) CO_2 gas is acidic—Explain. 2
- (c) Determine the relative molecular mass of compound 'X' of the stem. 3
- (d) Exchange of electrons occurs in the reaction (ii) of the stem.—Analyze. 4

4.

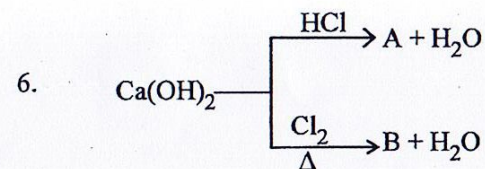


Beaker-1



Beaker-2

- (a) What is called vaporization? 1
- (b) Magnesium is an alkaline earth metal.—Explain. 2
- (c) Determine the concentration of the solution of 1st beaker. 3
- (d) If the solutions of both beaker are mixed together, analyze the nature of that mixture. 4
5. (i) $\text{C}_2\text{H}_6 + \text{Cl}_2 \longrightarrow \text{C}_2\text{H}_5\text{Cl} + \text{HCl}$
- [Bond energy of C–H, C–Cl, Cl–Cl, H–Cl are 414, 326, 244 and 431 KJ/mol respectively]
- (ii) $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) + 180\text{Kj} \rightleftharpoons 2\text{NO}(\text{g})$
- (a) What is called bond energy? 1
- (b) Aquous solution of Na_2CO_3 is alkaline—Explain. 2
- (c) Determine the value of ΔH of reaction (i) of the stem. 3
- (d) Analyze the effect of temperature and pressure on the equilibrium of reaction (ii) of stem. 4



- (a) What is called alcohol? 1
- (b) Bronze is an alloy.—Explain with reactions. 2
- (c) 'A' is responsible for the hardness of water.—Explain. 3
- (d) Compound 'B' of the stem is capable of killing germs and decolorize clothes.—Analyze. 4

7.

Elements	Ore
P	Celcoisite
Q	Hematite
R	Cinnabar

[Here, P, Q, R are used as symbolic]

- (a) What is called dehydrating agent? 1
- (b) How food is preserved by vinegar? Explain. 2
- (c) Explain purification of element 'P' of the stem with figure. 3
- (d) Analyze the variation in extraction process of two metals Q and R of stem. 4
8. (i) $\text{CaC}_2 + 2\text{H}_2\text{O} \longrightarrow \text{'X'} + \text{Ca(OH)}_2$
- (ii) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} + \text{NaOH}(\text{aq}) \longrightarrow \text{'Y'} + \text{NaBr}$
- (a) What is called diffusion? 1
- (b) Why ripe mango tastes sweet? Explain. 2
- (c) Explain the unsaturation of compound 'X' of the stem with reactions. 3
- (d) It is possible to prepare ethane form 'Y' of the stem.—Analyze. 4

