

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1 & 2
 Figures in the right hand margin indicates marks

Answer **All** questions.

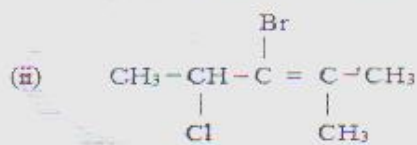
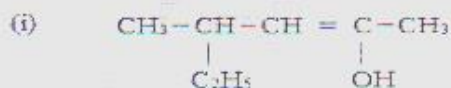
2 x 10

1. a. What do you mean by 'penultimate shell'? what is the maximum capacity of this shell to hold electrons?
- b. What are basic salts? Give an example of it.
- c. What happens in the reduction step of metallurgical operation?
- d. Give the bond-line formula of 3-Methylpent-2-ene.
- e. Which chemical substances are responsible for the temporary hardness of water?
- f. Write down the electronic configurations of Cu and Fe³⁺ ion.
- g. What is the major component of CNG? Give one use of CNG.
- h. Name the monomers of Bakelite.
- i. Define insecticides. Give example of an insecticide.
- j. What are lubricants? Give an example of solid lubricant.

2. Answer **Any Six** Questions

6 x 5

- a. Define P^H of a solution. How many grams of NaOH are required to prepare 2 litres of its solution having P^H 12?
- b. Explain electrolysis of aqueous solution of NaCl.
- c. Explain magnetic separation method of concentration of ores with a neat and labelled diagram.
- d. Define hardness of water. Explain cold-lime soda process of removal of hardness of water.
- e. Write a brief note on preparation and uses of Bakelite.
- f. Define and explain Arrhenius theory of acids and bases. What is neutralization reaction?
- g. Write down the IUPAC names/structural formulae of the following.



(iv) 4-Bromo-3-methylpent-3-en-2-ol

(v) 2-Methylbuta-1,3-diene

- 3 (a) Briefly explain 'Bohr's atomic model' for hydrogen atom. 06
(b) How many grams of $\text{Ca}(\text{OH})_2$ are required to prepare 2.5 litres of its decinormal solution? 04
- 4 (a) What are lubricants? Write down the purpose of lubrication. 06
(b) Define herbicide and fungicide with at least two examples from each. 04
- 5 (a) Write down the composition and uses of producer gas. 05
(b) Give a brief note on 'Galvanization'. 05
- 6 (a) Define Faraday's 1st law of electrolysis. How many grams of silver will be deposited by the passage of 50 ampere of current through silver nitrate solution of 30 minutes? 05
(b) Define covalent bonding. Explain the formation of CH_4 molecule. 05
- 7 (a) Define and explain vulcanisation of raw rubber. 05
(b) Distinguish between saturated and unsaturated hydrocarbons. 05