

Council for Technical Education and Vocational Training
Office of the Controller of Examinations
Sanothimi, Bhaktapur

Regular/Back Exam-2076, Shrawan/Bhadra

Program: Diploma in Civil/ DAE/DEE/DAE/DME/
Ref.A/C /DIT/ DCE/ DEEX/ DEX/ DGE/
Architecture/Hydro Engineering
Year/Part: I/II (Old+New Course)
Subject: Engineering Chemistry-II

Full Marks: 60

Pass Marks: 24

Time: 3 hrs

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt All Questions.

- 1.a) What do you mean by hardness of water? Describe the permittit method of hardness of water? [1.5+3.5]
- b) Describe the manufacture process of nitric acid with it's principle and well labeled diagram. [5]
- 2.a) Define allotrophs of carbon? Explain the structure of Diamond and Graphite. [5]
- b) How does hydrochloric acid is prepared in the laboratory? Explain, the properties of hydrochloric acid. [2.5+2.5]
- 3.a) Explain the dehydrating and oxidizing properties of sulphuric acid. [5]
- b) What do you mean by acid rain? Mention the types of chemical fertilizer with its features (Characteristics). [2.5+2.5]
- 4.a) What are the characteristics of alkali metals? Explain the properties of sodium? [1+4]
- b) What are the characteristics of aromatic compounds? Explain the chemical properties of benzene? [1+4]
5. Write short notes on: (Any Five) [2x5=10]
 - a) Aqua-regia b) bleaching action c) Functional group
 - d) Polyethene e) Alkali earth metals f) Homologous series.
6. What happen when: (Any Five) [2x5=10]
 - a) Ammonia gas is passed on concentrated hydrochloric acid?
 - b) Concentrated HCl and concentrated HNO₃ is mixed in 3:1 ratio

Contd.....

- c) Benzene is treated with helpful chemical presence of Anhydrous AlCl_3 and ether.
- d) Calcium metal is allowed to react with water molecule
- e) Ammonia is passed over excess of chlorine.
- g) Iron rod is immersed into copper sulphate solution.

Good Luck!

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