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BET-013

03106

Diploma in Civil Engineering / Diploma in Electrical & Mechanical Engineering

DCLEVI/DMEVI/DELVI/DECVI/DCSVI/ ACCLEVI/ACMEVI/ACELVI/ACECVI/ACCSVI

Term-End Examination

June, 2012

BET-013 : CHEMISTRY

Time : 2 hours *Maximum Marks : 70*

Note : *Question number **1** is **compulsory**. Answer any other four question from question numbers **2** to **8**. All questions carry **equal** marks.*

1. (a) What is Modern Periodic Table. 2
   (b) Name the two allotropic forms of Oxygen. 2
   (c) What is the difference between mineral and ore ? 2
   (d) Why does ice float on water ? 2
   (e) Enlist any four gaseous fuels. 2
   (f) What is a copolymer ? Give an example. 2
   (g) Write any four uses of bleaching powder. 2

2. (a) Why an anion is always larger than its parent atom ? 4
   (b) Explain the following. 6
      (i) Dobereiner triad
      (ii) Law of octaves
      (iii) Inner transition elements

(c) Write the electronic configuration of : 4

(i) He (2)

(ii) Ne (10)

(iii) *Cl* (17)

(iv) Mg^{2+} (Atomic number of Mg is 12)

3. (a) Write short notes on the following :

(i) Atmosphere 3

(ii) Important zones of atmosphere 3

(iii) Biogas 2

(b) Write the chemical formula of following compounds 4

(i) Hydrochloric Acid

(ii) Sulphuric Acid

(iii) Nitric Acid

(iv) Nitrogen dioxide.

(c) Write the isotopes of hydrogen. 2

4. (a) Explain the function of a Blast furnace with a neat diagram. 8

(b) How is copper purified ? Explain. 3

(c) What is high carbon steel ? Give its important uses. 3

5. (a) Explain the hydrological cycle, with a diagram 6

(b) What is hydrogen bond ? Explain with a diagram. 4

(c) pH of a solution is 3. What is the pOH of the solution ? (pKw=14) 4

6. (a) Explain the construction of a Bomb Calorimeter with a neat diagram. 8

(b) What are primary and secondary fuels ? Give 3 examples for each type. 6

7. (a) Write a short note on following types of lubricants. 8

(i) Liquid lubricants

(ii) Semi - solid lubricants

(iii) Solid lubricants

(iv) Synthetic lubricants

(b) Distinguish between Flash point and fire point. 4

(c) Write about sliding friction. 2

8. (a) Differentiate between isotactic, syndiotactic, and atactic polymers on the basis of their structure. 6

(b) Write a detailed note on composition, properties and uses of any two types of glasses. 6

(c) Why glass is called as "super cooled liquid" ? 2