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BET-013

DIPLOMA IN CIVIL ENGINEERING DCLE(G) / DIPLOMA IN MECHANICAL ENGINEERING (DME) / DCLEVI / DMEVI / DELVI / DECVI / DCSVI / ACCLEVI / ACMEVI / ACELVI / ACECVI / ACCSVI

00577

Term-End Examination

December, 2017

BET-013 : CHEMISTRY

Time : 2 hours *Maximum Marks : 70*

Note : *Question number 1 is* ***compulsory****. All questions carry equal marks. Attempt any* ***four*** *questions from questions no. 2 to 8.*

1. (a) What is the Aufbau Principle ?

   (b) What is Modern Periodic Law ?

   (c) What is Polymerization Process ?

   (d) Define Glass Transition Temperature (T_g).

   (e) Define Triad with suitable examples.

   (f) Complete the following reaction :

   $$CaCl_2 + ... \rightarrow CaCO_3 + 2NaCl$$

   (g) Ionic compounds do not conduct electricity in a solid state. Explain. *7×2=14*

2. (a) Describe the disadvantages of hard water in a boiler. *8*

(b) Why does ice float on liquid water ? *4*

(c) Write the advantages of using chlorine as a disinfectant. *2*

3. (a) Define Ionization Energy (IE). What are the factors which affect IE ? *10*

(b) IE of nitrogen is greater than oxygen. Explain why. *2*

(c) State the causes of Periodicity. *2*

4. (a) Describe the procedure for determining the calorfic value of a fuel by bomb calorimeter. *8*

(b) Classify Lubricants. Give two examples of solid lubricants. *3*

(c) What is Flash Point ? How is it different from Pour Point ? *3*

5. (a) Name any two ores of Aluminium. *2*

(b) What is Red Mud ? Explain. *4*

(c) Explain the process of extraction of aluminium. *8*

6. (a) Name the monomer of natural rubber and explain its vulcanization process. *10*

(b) What is the role of plasticizers ? *2*

(c) Differentiate between the properties of low density and high density polyethylene. *2*

7. (a) Describe the physical and chemical properties of bleaching powder. *10*

(b) Explain why silicates, phosphates and borates have a greater tendency to form glass. *2*

(c) How are refractory materials classified ? *2*

8. Write short notes on any ***two*** of the following : *2×7=14*

(a) Functions of Borax and Alumina in Manufacturing of Glass

(b) Properties of Sulphuric Acid

(c) Functions of Lubricants