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BET-013

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

Term-End Examination

June, 2015

00880

BET-013 : CHEMISTRY

Time : 2 hours *Maximum Marks : 70*

Note : *Answer any* ***five*** *questions. Question No. 1 is* ***compulsory****. All questions carry equal marks.*

1. (a) Write down the electronic configuration of $_{17}Cl$ and $_{24}Cr^{++}$. 2

(b) Which one of O and O^- is larger and why ? 2

(c) What is a triad ? Give one example of a triad. 2

(d) Write the names of any three elements of Group IA. 2

(e) Complete the following nuclear reaction :

$$^{6}_{3}Li + ... \rightarrow {}^{3}_{1}H + {}^{4}_{2}He$$ 2

(f) Complete the chemical reaction given below : 2

$$NH_3\,(g) + HCl\,(g) \rightarrow \ldots$$

(g) What is the percentage of oxygen in the exhaled air ? 2

2. (a) What is atomic radii ? How does it vary in a group and in a period ? Explain with examples. 8

(b) What are the different natural sources of water ? 3

(c) What is the major function of atmospheric water ? 3

3. (a) Define atmosphere. What is the importance of different zones of atmosphere in our life ? 6

(b) Describe the preparation, properties and uses of oxygen. 6

(c) Give the structure of hydrazine. 2

4. (a) Explain the removal of temporary hardness of water with appropriate chemical equations. 6

(b) How is chlorine prepared in the laboratory ? Name two important compounds of chlorine with their uses. 6

(c) Why is water a better solvent for ionic compounds than other solvents ? 2

5. (a) (i) Explain one industrial method used in the preparation of hydrogen. *4*

(ii) Give two important uses of hydrogen. *2*

(b) Write short notes on any ***two*** of the following : *2×4=8*

(i) Reverse Osmosis

(ii) Distillation

(iii) Lignite

(iv) Bituminous Coal

6. (a) Draw a neat and labelled diagram of Blast furnace and describe the manufacturing of steel from iron. *6*

(b) What are the main causes of scale formation in the boiler ? List out its disadvantages. *6*

(c) One gm of NaOH is dissolved in 1 L water. Calculate the amount of Na in ppm. *2*

7. (a) (i) What is meant by refining of petroleum ? *2*

(ii) Explain fractional distillation of petroleum and name any three fractions obtained during the process. *6*

(b) (i) Define copolymers. Give the names of any two copolymers with their uses. *4*

(ii) What is vulcanization ? *2*

8. (a) What are the main properties of glasses ? *4*

(b) What are the important steps involved in the manufacturing of refractories ? *4*

(c) Name four important raw materials used in the manufacturing of glass. *4*

(d) Why does copper turn pale green on standing for a long time in air ? *2*