

**Diploma in Civil Engineering / Diploma
in Electrical & Mechanical Engineering**

Term-End Examination

June, 2008

BET-013 : CHEMISTRY

Time : 2 hours

Maximum Marks : 70

Note :

- (i) Question no. 1 is **compulsory**.
- (ii) Answer any other **four** questions from questions no. 2 to 8.
- (iii) All questions carry equal marks.
- (iv) Answers should be in your own language.

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| 1. (a) | What is law of octaves ? | 2 |
| (b) | Name the two allotropic forms of oxygen. | 2 |
| (c) | What is the difference between minerals and ores ? | 2 |
| (d) | Why does ice float on water ? | 2 |
| (e) | Enlist any four gaseous fuels. | 2 |
| (f) | What is vulcanisation ? | 2 |
| (g) | Write any four uses of bleaching powder. | 2 |

2. (a) Write electronic configuration of the following : 4
- (i) He (2)
 - (ii) Na (11)
 - (iii) K^+ (Atomic No. of K = 19)
 - (iv) Br (35)
- (b) What are f-block elements ? Write down the name of any four f-block elements. 4
- (c) Define Atomic Radius. How does it vary down a group and across a period from left to right ? 6
3. (a) Name any four chlorine containing compounds and their uses. 4
- (b) Explain about Haeber Process with emphasis on role of pressure and temperature in the process. 6
- (c) State any four uses of hydrogen. 4
4. (a) Explain the functioning of the Blast furnace with the help of a neat diagram. 8
- (b) Why does copper turn pale green on long exposure in atmosphere ? 3
- (c) Even though Iron Pyrite is widely available, but it is not suitable for iron and steel production. Why ? 3
5. (a) What is hardness of water ? Explain any two processes for removal of hardness of water. 6
- (b) pH of a solution is 2. What is the pOH of the solution ? ($pK_w = 14$) 3

- (c) Explain the concept of hydrogen bonding and its effect on physical properties of water. 5
6. (a) Explain the construction and functioning of a Bomb Calorimeter, with a neat diagram. 10
- (b) Write down four desirable characteristics of a fuel. 4
7. (a) Define lubricants and state any four functions of lubricants. 6
- (b) Distinguish between flash point and fire point. 4
- (c) Explain the different steps involved in manufacturing of glass. 4
8. (a) Discuss the reaction process in free radical polymerisation with an example. 6
- (b) Write about Cationic and Anionic polymerisations. 4
- (c) What are the main groups of refractories? 4

