

Roll No.

Total No. of Questions : 6]

[Total No. of Printed Pages : 4

EXS-70

B.Tech. Ist Semester (CSE, IT & Electronics)

Examination, 2023

Engineering Chemistry

Paper - BE-102

Time : 3 Hours]

[Maximum Marks : 60

Note :- Attempt all questions. Questions shall be attempted section wise at one place.

1. Write short answer of the following : 2×5=10

(a) Define Alkalinity of water. Write the name of three im-

portant parameters causing alkalinity in water.

- (b) Why pulverised coal used as a gaseous fuel.
 - (c) What is meant by passivity of metals?
 - (d) Write the dimension of the jet nozzle of redwood viscometer No I
 - (e) Define Chemical oxygen demand.
2. (a) Calculate the amount of lime and soda required for softening of 1500 lit of water having $\text{Ca}(\text{HCO}_3)_2 = 45.5$ ppm, $\text{Mg}(\text{HCO}_3)_2 = 32.5$ ppm, $\text{CaCl}_2 = 34$ ppm, $\text{NaCl} = 8$ ppm

10

- (b) Write a short note on Rapid gravity filtration.

OR

- (a) Write short notes on
 - (i) Scale and sludge formation
 - (ii) Settling of water

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(2)

3. (a) How good quality coke can be manufactured by Ottohoffmann Oven Process ? 10
- (b) Find out the weight and volume of air actually required for complete combustion of 0.5 Kg of coal.

OR

- (a) Why thin lubricating oils show lower viscosity Index ? 3
- (b) How a lubricant works ? Clearly mention the mechanism of lubrication with reduction of shearing strength of material. 7
4. (a) Write informative notes on Fuel cells. 10
- (b) Comments on control and prevention of corrosion by sacrificial anode.

OR

- (a) What are the various thermo dynamic functions ? What are the applications of Nernst Equation ? 10
- (b) Discuss the various aspects of differential oxidation theory of electrochemical corrosion ?

12
32
13
19

5. (a) Which chemical reactions occur with hardening and setting of cement ? Signify the role of gypsum. 10
- (b) Write critical note on Silicones.

OR

- (a) What is meant by refractoriness ? Give characteristics and uses of Alumina refractory. 10
- (b) Define polymers and discuss mechanism of polymerisation.
6. (a) What is the principle of NMR ? Give block diagram of the instrument. 10
- (b) What is the major threat of nuclear pollution ?

OR

- (a) Write short Dissolved Oxygen. 10
- (b) What is the major cause of Land pollution ? Summarise as an effective note.
