

1E2004	Roll No. _____	Total No of Pages: 2
	1E2004 B. Tech. I Sem. (Back) Exam., Dec. - 2017 104 (O) Engineering Chemistry Common to all Branch	

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks: 26

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL

2. NIL

UNIT-I

- Q.1 (a) What is cracking? What are advantages of catalytic cracking process? Describe moving bed catalytic cracking process with the help of neat diagram. [12]
- (b) Write notes on octane number. [4]

OR

- Q.1 (a) Define synthetic petrol. Describe Fischer Tropsch process with the help of diagram. [8]
- (b) Write notes on – Oil gas and Anti knocking agents. [4+4=8]

UNIT-II

- Q.2 (a) What is C.V.? Explain the determination of calorific value of solid fuels. [8]
- (b) Calculate the minimum weight of O₂ and air required for complete burning of 5.0 kg of coal, which containing 80% carbon and 15% hydrogen & rest is oxygen. [8]

OR

- Q.2 (a) Write short notes on -
- (i) Flue gas analysis by Orsat's apparatus [4]
 - (ii) Ultimate analysis [4]
- (b) A sample of coal was found to have the following percentage composition by weight - C = 80%, H = 5%, O = 12% S = 2% and ash = 1%. Calculate gross and net calorific value of coal sample by using Dulong's formula. [8]

UNIT-III

- Q.3 (a) Define conducting Polymers. Explain methods of preparing conducting Polymers. [8]
- (b) Short notes on -
- (i) Vulcanization [4]
 - (ii) Natural Rubber [4]

OR

- Q.3 (a) Explain preparation, properties & uses of fullerenes. [8]
- (b) Discuss the classification of polymers with examples. [8]

UNIT-IV

- Q.4 What is Portland cement? Write its composition. Describe the manufacturing process of cement by Rotary Kiln Technology. <http://www.rtuonline.com> [16]

OR

- Q.4 What is glass? Describe the manufacturing process of ordinary glass and also discuss the uses of glass. [16]

UNIT-V

- Q.5 (a) Define Refractories. How are they classified? Give the essential requirements of a good refractory. [12]
- (b) Discuss RUL Test. [4]

OR

- Q.5 (a) Define the term lubricant and lubrication. What are the different type of lubricants? Discuss extreme pressure lubrication. [12]
- (b) Explain Flash and Fire Point. [4]