

2E1026

Roll No. : _____

Total Printed Pages : **3****2E1026**

B. Tech. (Sem. II) (Main/Back) Examination, June/July - 2012
Common for All Branch
206 Engineering Chemistry - II

Time : 3 Hours]

[Maximum Marks : **80**
[Min. Passing Marks : **24**

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

- 1 (a) Define and classify fuel's. Describe and give important characteristics of good metallurgical coke. Give Hoffmann process of manufacturing coke. 8
- (b) What is knocking in an IC engine ? How it is related to the structure of constituent hydrocarbons ? Define Octane number. 8

OR

- 1 (a) What are the important gaseous fuel's ? Describe manufacture of coal gas. What are the advantages of gaseous fuel's over other kinds of fuels ? 8
- (b) Write short notes on any two :
- (i) Synthetic petrol
 - (ii) Gaseous fuel's
 - (iii) Cracking
 - (iv) Reforming.
- 8



UNIT - II

- 2 (a) What do you understand by high and low calorific value of the fuel ? How is it determined using Junkers Calorimeter. Describe giving neat labelled diagram. 8
- (b) The percentage composition of coal sample is C=80%, H₂=4%, O₂=3%, N=3%, S=2%, ash=5% and moisture=3%. Calculate the quantity of air required for complete combustion of 1 kg of coal, if 60% excess of air is supplied. 8

OR

- 2 (a) Discuss the analysis of flue gas using Orsat's gas apparatus giving its significance. 8
- (b) What is ultimate and proximate analysis of coal ? Discuss their significance. How are ultimate and proximate analysis done ? 8

UNIT - III

- 3 (a) Write a short note on metastable equilibrium with reference to sulphur system. 8
- (b) Explain Ag-Pb system with one application. 8

OR

- 3 (a) What is phase rule ? Define and explain the terms involved. What are triple and eutectic points. 8
- (b) Discuss the phase diagram of sulphur system. 8

UNIT - IV

- 4 Give brief idea of following new engineering materials :
 (a) Organic electronic materials
 (b) Fullerene.

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[Contd...

- (a) Super Conductor's
- (b) Optical Fibre.

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UNIT - V

- 5 (a) What is atmospheric corrosion ? Why metals like Cu, Sn, Pb, Al etc are corroded slowly as compared to Na, Ca, Mg, Fe etc. ?

- (b) What is electrode potential ? Explain mechanism of corrosion by galvanic cell action.

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OR

- 5 (a) Explain "rusting of iron" with the help of electrochemical theory of corrosion.

- (b) Distinguish between Galvanizing and Tining.

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