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SB-3583

M. Sc. (Part-II) (S.F) Examination

March / April – 2011

Patroleum & Polymers : Paper-III

(Industrial Chemistry)

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M.Sc, Part-II(SF)**

Name of the Subject :

☛ **Petroleum and Polymers : Paper-III**

☛ Subject Code No. : **3 5 8 3** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Answer to the two sections should be written in separate answer book.

(3) Figures to the right indicate full marks of the question.

SECTION - I

1 (a) What are Petrochemicals ? What are the sources of petrochemicals ? Discuss the first, second and third generation of petrochemicals. **12**

(b) Discuss the chemistry of alkenes.

OR

1 (a) What is meant by crude petroleum ? What are the basic raw materials for petroleum industry ? How are petroleum hydrocarbons classified ? **12**

(b) Discuss the present position of petrochemical industry in Gujarat with special reference to fibres, fertilizers and dyes.

2 (a) Describe recovery processes of aromatics from petroleum. **12**

(b) Give the industrial manufacturing process and uses of :

(i) Acetone

(ii) Ethylene glycol.

OR

2 (a) Give a full account of various industrially important chemicals obtained from BTX. **12**

(b) Give the industrial manufacturing process and uses of :

(i) BPA

(ii) Ethylene Oxide

3 "Petroleum products have been the most vital raw material for chemical industry." Justify the statement with special reference to acetylene and C_4 cut. **11**

OR

3 Describe various industrially import chemicals obtained from C_1 and C_3 cuts laying stress on reaction conditions. **11**

SECTION - II

4 (a) Explain the classification of polymers giving suitable illustrations. **12**

(b) Discuss the cationic polymerization mechanism giving illustration. Explain ring opening polymerization.

(c) Derive the equation showing the propagation of the reaction as first order with respect to initiator concentration.

OR

4 (a) Explain phase techniques involve in polymerization. **12**

(b) Derive the equation predicting the instantaneous molar composition of the copolymer formed.

(c) Discuss the formation of polyvinyl acetate and polyamides giving suitable examples.

5 (a) Explain the basic principle and working involved in GPC. **12**

(b) Explain how the scattering phenomenon is used in determining the mol.wt. of a polymer.

(c) Discuss the terms involved in mol.wt.distribution. Explain polydispersity index of polymer.

OR

5 (a) Discuss membrane osmometry technique. **12**

(b) Give and account of TGA method.

(c) Describe the fractionation of polymers.

6 (a) How to determine the degree of crystallinity in polymers. **11**

(b) Explain different zones and working of extrusion and molding.

(c) Explain the role of any two polymer additives in polymer technology.

OR

6 (a) Give an account of glass transition temperature and give its significance. **11**

(b) Explain dissolution and solubility parameter of polymers.

(c) Explain briefly the factors influencing the crystallinity of polymers.
