



**RF-53179**

**M. Sc. (Part-II) (SF) Examination**  
**April / May – 2010**  
**Petroleum & Polymers : Paper - III**  
*(Industrial Chemistry)*

Time : 3 Hours]

[Total Marks : 70

**Instructions :**

(1)

नीचे दृशविले निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="checkbox"/> M. Sc. (Part-2) (SF)	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="checkbox"/> Petroleum & Polymers - 3	<input type="text"/>
Subject Code No. : <input type="text"/> 5 <input type="text"/> 3 <input type="text"/> 1 <input type="text"/> 7 <input type="text"/> 9	<input type="text"/>
Section No. (1, 2,.....) : <input type="text"/> 1&2	<input type="text"/>
	Student's Signature

- (2) Answer to the two sections should be written in **separate** answer books.
- (3) Figures to the right indicate full marks of the questions.

**SECTION - I**

- 1 (a) What are Petrochemicals? What are the sources of Petrochemicals? How are they classified? **12**
- (b) Discuss the position of Petrochemical industry in India.

**OR**

- 1 (a) What are petroleums? How are Petroleum hydrocarbons classified? Discuss the chemistry of aromatic hydrocarbons. **12**
- (b) Write a brief note on historical development of petroleum.

- 2 (a) Give an account of large scale production of aromatic chemicals of industrial importance. 12  
(b) Give the industrial manufacturing process and uses of:-  
(i) MIBK  
(ii) Glycol and Polyglycol ethers

OR

- 2 (a) Describe refining processes used in petroleum industry. 12  
(b) Give the industrial manufacturing process and uses of  
(i) BPA  
(ii) Ethanol amines

- 3 Give the manufacture and utilization of the following petrochemicals laying stress on reactions conditions : 11  
(i) Glycerine  
(ii) Carbon black  
(iii) Acrylonitrile  
(iv) Methanol  
(v) Vinyl Acetate  
(vi) Isopriene

OR

- 3 Give the manufacture and utilization of the following petrochemicals laying stress in reaction conditions:- 11  
(i) Acetylene  
(ii) Propylene tetramer  
(iii) Synthesis gas  
(iv) HMDA  
(v) Vinyl Chloride  
(vi) Dodecane dioic acid

## SECTION - II

- 4 (a) Describe mechanism of free radical polymerization. 12  
(b) Explain various intermolecular forces in polymers.  
(c) Comments on polymer Waste disposal & its remedies.

OR

- 4 (a) Explain various conformations and isomerism in poly chains.  
(b) Write a note on kinetics of copolymerization.  
(c) Discuss giving examples, acrylic and polycarbonates.
- 5 (a) Explain gel permeation chromatography technique. 12  
(b) Describe Tyndall effect.  
(c) Explain Thermal Gravimetric analysis method.

**OR**

- 5 (a) Write a note on Differential Scanning Colorimetry method. 12  
(b) Explain dilute solution viscosity method.  
(c) Comments on Molecular weight distribution curves.
- 6 (a) Explain glass transition temperature and give its significance. 11  
(b) Discuss thermodynamics of polymer dissolution.  
(c) Write a short note on extrusion method.

**OR**

- 6 (a) Define crystallinity and crystallizability. Discuss various factors affecting on crystallinity. 11  
(b) Explain injection moulding technique in polymer processing.  
(c) Explain the role of antioxidants and plasticizers as polymer additives.
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