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KC-6289

B. E. II (Sem. III) (TP & TT) Examination

November/December – 2012

Polymer Chemistry

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

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

Name of the Examination :

☛ **B. E. II (Sem. III) (TP & TT)**

Name of the Subject :

☛ **Polymer Chemistry**

☛ Subject Code No. : **6 2 8 9** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answers to the two sections must be written in same answer book.

(3) Figures to the right indicate full marks.

SECTION – I

1 (a) Answer the following objective questions : **10**

(i) In nylon 66, what does the first digit '6' indicates ?

(ii) _____ process is used for the production of expanded materials.

(iii) What is the physical state of syndiotactic polypropylene ?

(iv) Ammonia acts as _____ in natural rubber processing.

(v) Give two examples of polyolefins.

(vi) Give reason why free radical polymerization of ethylene introduces excessive branching in polyethylene.

(vii) Name the catalyst used in production of butyl rubber.

(viii) Textile grade polyvinyl acetate is produced by _____ polymerization method.

(ix) PAN can not be melt spun – True or False. Justify.

(x) Give the structure of resol.

(b) Describe production, properties and application of IPP. **10**

2 (a) Describe the extrusion and processing of natural rubber. Discuss various modified grades of natural rubber. **10**

(b) Describe production, properties and application of polymethyl methacrylate. **5**

OR

2 Give a critical review on various techno chemical aspects of aromatic polyamides. **15**

3 Write short notes on any three of the following : **15**

(a) Addition and substitution reaction.

(b) Calendaring

(c) Hydrogenation reaction

(d) Epoxy resin.

SECTION – II

4 (a) Answer the following objective questions : **10**

(i) The monomer should have _____ reactive functional groups for polymerization to proceed.

(ii) _____ derivatives are very widely used as antioxidants.

(iii) Polyvinyl acetate is hydrolyzed with an alkali to give _____.

(iv) With saturated polymers can be carried a _____ reaction.

(v) The _____ groups present in a polymer may be converted to _____ groups by reduction.

(vi) _____ is an examole of thermoplastic and _____ is an example of thermosetting.

(vii) When two repeat units are distributed alternately through the chain, the polymer is called_____ co-polymer.

(viii) The _____ process was discovered by Goodyear in 1839.

(b) What is Tg ? Explain Differential Scanning Calorimetry in detail. **10**

5 (a) Give a critical review on various methods of polymerization. **10**

(b) Explain X-ray diffraction method in detail. **5**

OR

5 (a) Explain what is meant by Mn and Mw. Give any one method to determine Mn. **10**

(b) Write short notes on I.R. spectroscopy. **5**

6 Write short notes any three of the following : **15**

(a) Compounding

(b) Vapour phase osmometry

(c) Urea formaldehyde resin

(d) Cure reaction.