SC

[A-28]

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SARDAR PATEL UNIVERSITY

M. Sc. -Chemistry (Fourth Semester, CBCS) EXAMINATION

Industrial Polymer chemistry (IPC)

PS04ECHE04: Selected Topics in Polymers

28th Apr, 2015, Tuesday **Time: 10.30 am to 1.30 pm**

Note: Figure to the right in brackets indicates maximum marks **Total marks: 70**

QUE.1 Answer the following questions by selecting the most appropriate option. **(8)**

i. The opacifying efficiency of pigments is affected by :
   (a) their ability to selectively absorb light of a specific wavelength
   (b) their particle size
   (c) their concentration in the paints
   (d) all of these

ii. Copolymerization of drying oils with monomer such as _____ produces faster drying vehicles which have better water and alkali resistance than linseed oil.
   (a) acrylic acid/methacrylic acid (b) vinyl acetate/butadiene
   (c) acrylonitrile/methylmethacrylate (d) styrene /vinyl toluene.

iii Which one of the following is not characteristic of engineering plastics?
   (a) High heat resistance (b) Dimension stability
   (c) Mechanical strength (d) Electrical conduction

iv ABS has _____ nature.
   (a) conducting (b) crystalline
   (c) amorphous (d) crystalline solid

v Which one of the following adhesives is generally presumed to survive the life of the application?
   (a) structural (b) natural
   (c) meta structural (d) non structural

vi Which one of the following grafting is initiated by free radical?
   (a) Irradiation (b) chemical
   (c) Biochemical (d) Transfer

vii Polymer species bear negative charges when they dissolved in water are called
   (a) Anionic polymers (b) Cationic polymers
   (c) Telechelic polymers (d) Nonionic polymers

viii Hydroxy ethyl cellulose is an example of
   (a) Natural water soluble polymer (b) Modified natural water soluble polymer
   (c) Synthetic water soluble polymer (d) None of the above

QUE.2 Answer the following questions in short. (Any seven). **(14)**

i Differentiate Varnish, Enamel and Distemper paints.

ii Why 'extender pigments' are often added to paint formulation? Give some examples of 'extender pigments'.

iii Introduce and define the term 'adhesive'.

iv Explain the limitation of acrylates.

v Discuss the synthesis of PPS and its application.

vi Discuss the applications of polycarbonate.

vii Give the limitation PPO.

viii Why corn starch is commercially important over other starches?

ix List out the non carbohydrate compounds present in starch moiety.

QUE.3 **(12)**

A Elaborate size and shape of pigment particles according to their properties.

B Discuss various principles of paint formulation.

OR

B Write a note on characteristics and properties of white pigments.

QUE.4 **(12)**

A Discuss the synthetic route, properties and applications of Polyacetal.

B Give the detail, note on 'PEEK'. Discuss synthesis of 'HPEEK'.

OR

B Explain the engineering polyester. Discuss its traditional route of production.

QUE.5 **(12)**

A Explain the characteristics of 'adhesive' and discuss basic its classifications.

B Discuss the non structural adhesive. Explain pressure sensitive adhesives and its advantages and limitations.

OR

B Give the details note on graft copolymers.

QUE.6 **(12)**

A List out the degradation processes of starch and explain any one in detail.

B Give synthesis, properties and applications of Methyl Cellulose.

OR

B Write briefly on the following:

(i) Cationic starch derivatives

(ii) British Gum