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SARDAR PATEL UNIVERSITY
M. Sc. (Semester-IV) Examination
Monday, 11th April 2016
2:30 PM to 5:30 PM
Industrial Polymer Chemistry, PS04CIPC03
(Processing of Polymers)

Total Marks : 70

Q-1

Answer the following:

[8]

1. During melt processing, the polymer chains are subjected to intense _____
 - (a) Stress
 - (b) Strain
 - (c) Stress and strain
 - (d) None of the above
2. Which of the following is used mainly for mixing paint and paint like plastisols
 - (a) Paddle mixer
 - (b) Z-blade mixer
 - (c) High speed mixer
 - (d) Ball mill
3. In casting, flexible mold is mainly used for
 - (a) Objects having shallow undercuts
 - (b) When no. of articles is less
 - (c) Uncomplicated large objects
 - (d) Simple shape articles
4. In extrusion, the required extruder power increases when
 - (a) Output increases
 - (b) Barrel diameter decreases
 - (c) Screw length decreases
 - (d) High output is required at low temperature
5. The material that forms the bond between them is called
 - (a) Substrate
 - (b) Adherent
 - (c) Adhesion
 - (d) Adhesive
6. In which of the foam molding process, two reacting components are metered together and mixed inline so that they begin to react in either a polymerization or crosslinking reaction.
 - (a) Foam in place
 - (b) High pressure foaming
 - (c) Extrusion foaming
 - (d) Reaction injection molding

(P.T.O.)

7. ASTM means
- (a) American Standards for Testing and Materials
 - (b) American Society for Testing and Methods
 - (c) American Standards for Testing and Methods
 - (d) American Society for Testing and Materials
8. Garvey die is used to determine the cure characteristics of
- (a) Thermoplastic materials
 - (b) Thermoset materials
 - (c) Rubbers
 - (d) Rubber profiles

Q-2 Answer the followings (**Any SEVEN**):

[14]

- (i) List out the different types of polymer stocks used in various processing methods.
- (ii) Write about the processing lubricants.
- (iii) Give advantages and disadvantages of casting process.
- (iv) List out the important functions of screw.
- (v) On what basis foam methods differ from other processing methods?
- (vi) Give schematic representation of rotational molding unit.
- (vii) List out the factors on which the choice of adhesive depends.
- (viii) Explain the difference between Izod impact test and Charpy impact test.
- (ix) Define the terms: Head Deflection Temperature and Vicat Softening Temperature

Q-3 (a) Discuss briefly about Rheological States of polymers.

[6]

(b) Write a note on: Evaluation of Extent of Mixing

[6]

OR

(b) Give complete account on:

[6]

- (i) Twin drum tumbler blender
- (ii) Henschel mixer

Q-4 (a) With a neat sketch explain the solvent casting process.

[6]

(b) What is the difference between a polymer film and a polymer sheet? Describe a process of manufacturing extruder blow film.

[6]

OR

(b) Mention the different types of clamping systems used in injection molding process and with explain any one of them into details using suitable diagram.

[6]



- Q-5 (a) State the different techniques of thermoforming and describe briefly about vacuum forming process. [6]
- (b) Write about Injection blow moulding process. [6]

OR

- (b) Explain the process of static powder molding process and give its merits and demerits. [6]
- Q-6 (a) Explaining the importance of finishing operations of the processed objects. Describe any one of them into details. [6]
- (b) Describe the following: [6]
- (i) Gardner Holdt bubble viscometer
 - (ii) Bierbaum scratch hardness test

OR

- (b) Give a brief account on Melt Flow Index test. [6]
