[107] SEAT No._____ No of Printed Pages: **03**

SARDAR PATEL UNIVERSITY
M. Sc. (Semester-IV) Examination
Saturday, 23th March 2019
2.00 PM to 5:00 PM
Industrial Polymer Chemistry, PS04CIPC23
(Processing of Polymers)

Total Marks : 70

Q-1 Answer the followings: **[8]**

1. Which of the following rheological state of the polymers is characterized by irreversible flow of the material?
   (a) viscoelastic state
   (b) elastoplastic state
   (c) elastoviscous state
   (d) viscous state
2. The output of a continuous mixer is measured in
   (a) kg/batch
   (b) hr/batch
   (c) kg
   (d) kg/hr
3. In low viscosity dispersions coating, the excess coating may be controlled by
   (a) doctor blade
   (b) a pair of rolls
   (c) keeping fixed distance between rolls
   (d) a pair of squeeze rolls
4. The zone of a screw that follows the feed zone is called the
   (a) throat
   (b) head zone
   (c) die zone
   (d) compression zone
5. If the mold moves on two planes of rotation, the process is called
   (a) centrifugal casting
   (b) cell casting
   (c) continuous casting
   (d) rotational casting
6. Mold cycle cost in injection molding depends upon
   (a) the material and the mold
   (b) the capital cost of the machine
   (c) the machine operations
   (d) all of the above
7. What is the maximum thickness that can be allowed for a plastics sheet in vacuum forming process?
   (a) 3 mm
   (b) 3.3 mm
   (c) 1 mm
   (d) 3.2 mm

(P.T.O)

8. The basic purpose of various finishing & machining operations is to remove
   (a) scratches
   (b) dents
   (c) imperfections
   (d) all of the above

Q-2 Answer the followings (**Any SEVEN**) **[14]**

i) What are the fundamental conditions of an efficient mixing process.

(ii) Polyvinyl chloride (PVC) not stable at its processing temperature (>200°C), Why?

(iii) List out the factors on which the mold releasing agents are depended.

(iv) What do you understand by anisotropic properties of polymers?

(v) Define the terms: Organosol and Plastisol.

(vi) Give schematic representation of floating knife method of spread coating.

(vii) What is the basic difference between extrusion blow molding process and injection blow molding process?

(viii) Define the terms: Sprue and Runner

(ix) List out the advantages and disadvantages of thermoforming process.

Q-3 (a) Explain in detail about the important factors of the feed stock that must be considered for melt processing of a thermoplastic polymer. **[6]**

(b) With a neat sketch diagram explain the working of a twin roll mixer. **[6]**

OR

(b) Give detail notes on the following: **[6]**
   (i) A Masticator
   (ii) Continuous kneader

Q-4 (a) With a neat sketch diagram explain the continuous casting method. **[6]**

(b) Describe briefly about the electrostatic coating process. **[6]**

OR

(b) Differentiate Compression molding process and Transfer molding process. **[6]**

Q-5 (a) Give a suitable sketch and explain the process of extrusion blow molding process. **[6]**

(b) With a neat sketch diagram explain the process of wet-spinning of polymer fibers. **[6]**

OR

(b) Write about static powder molding process. **[6]**

Q-6 (a) Explain the basic principle of the thermoforming process and describe the vacuum forming process in detail. **[6]**

(b) Write a note on feeding and removal of finished product in different types of calenders. **[6]**

OR

(b) Write about the following methods: **[6]**
(i) low pressure foam molding
(ii) high pressure foam molding

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