

[57]

SEAT No. _____

No. of printed pages: 2

SARDAR PATEL UNIVERSITY

M.Sc. (Polymer Science & Technology) Semester-II Examination-2019

Wednesday, 20th March – 2019

10:00 A.M. to 1:00 P.M.

PS02CPST22: POLYMER PROCESSING TECHNOLOGY

Total Marks: 70

Note: (1) Attempt all questions.
(2) Figures to the right indicate marks.

Q. 1 Answer the following multiple choice questions. **(08)**

- (1) The measurement by weight of material used to load mould at one time is known as _____.
(i) charge (ii) draw (iii) blister (iv) flash.
- (2) Moulding pressure is _____.
(i) projected area / press pressure (ii) moulding pressure × projected area
(iii) press pressure / projected area (iv) none of above.
- (3) _____ used as mould release agent.
(i) Silicone oil (ii) Wax (iii) Fluorocarbon oils (iv) All of above.
- (4) The role of screen pack in extrusion process is _____.
(i) to carry product away from the die (ii) to prevent heat loss during processing (iii) to prevent foreign matter (iv) none of above
- (5) Slush casting is used to cast _____ object.
(i) film (ii) hollow (iii) solid (iv) none of above.
- (6) The speed of ribbon blender is _____ rpm.
(i) 100 (ii) 125 (iii) 150 (iv) 75.
- (7) Stretch blow moulding requires _____ viscosity of polymer material.
(i) high (ii) low (iii) both i & ii (iv) none of above.
- (8) Polycarbonate pre dried at _____ °C temperature to remove hygroscopic behaviour.
(i) 150 (ii) 200 (iii) 250 (iv) 300.

Q. 2 Attempt any **seven** of the following. **(14)**

- (1) Explain processing parameters of thermoforming.
- (2) Explain function of nozzle. Enlist various types of nozzles used in injection moulding machine.
- (3) Explain the role of torpedo in injection moulding process.
- (4) Define gate. Enlist various gates used in injection moulding machine.
- (5) Enlist various stages of injection blow moulding process.
- (6) Enlist factors which increase shrinkage in polymer.

(1)

(P.T.O)

(7) Define runner. Draw neat labelled diagram of balance and imbalance runner system.

(8) Give a note on high speed mixture.

(9) Explain in detail internal and external landed semi positive mould.

- Q. 3** (a) Discuss in detail about melt processing of thermosetting plastics. (06)
(b) Explain flow properties for melt properties of thermoplastic with factors affecting it. (06)

OR

(b) Explain the significance of mixing in polymer processing. Discuss in detail about Z- blade mixture and twin drum tumbler. (06)

- Q. 4** (a) Write a note on following. (06)
1. Mould heating devices in compression mould.
2. Moulding defects during compression moulding process.

(b) What do you mean by rotational moulding process? Explain its advantages and disadvantages. Draw a neat labelled diagram of four steps of rotational moulding process. (06)

OR

(b) Give an account on extrusion moulding process used for thermoplastics polymers. (06)

- Q. 5** (a) Discuss inline reciprocating screw injection moulding machine. (06)
(b) Write a note on two plate and three plate mould used in injection moulding machine. (06)

OR

(b) What do you mean by toggle system? Explain with neat labelled diagram. Write down advantages and disadvantages of toggle system. (06)

- Q. 6** (a) Write a note on following. (06)
1. Pressure forming.
2. Twin sheet thermoforming.

(b) Give an account on calendaring process used for thermoplastics. (06)

OR

- (b) Write a note on following. (06)
1. Film casting.
2. Dip casting.

~~*****~~
②