

**Question-1 Write the following.**

Marks

- (i) Discuss the significance of selecting correct polymer grade for a given application. Explain with relevant parameters and examples. 07
- (ii) Explain the importance of K-value in PVC processing. How do different K-values affect product properties? 07

OR

- (i) With the help of a diagram, describe the moulding cycle in injection moulding. 07
- (ii) State the significance of L/D ratio and Compression ratio in injection moulding 07

**Question-2 Write the following**

- (i) Differentiate between single-screw and twin-screw extruders – advantages, applications, and limitations. 07
- (ii) Write short notes on:(a) Injection blow moulding (b) Stretch blow moulding 07

OR

- (i) Compare and contrast compression moulding and transfer moulding for thermoplastics. 07
- (ii) Describe the rotational moulding process with advantages, limitations, and applications. 07

**Question-3 Write the following**

- (i) Explain the role of curing agents, catalysts, and hardeners in thermosetting polymer processing. 07
- (ii) Describe the hand lay-up and spray-up methods used in FRP manufacturing, with diagrams. 07

OR

- (i) Discuss the pultrusion process with its advantages, limitations, and applications. 07
- (ii) Describe the flow behavior of thermoset resins during curing and its effect on product properties. 07

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**Question-4 Write the following**

- (i) Write short notes on:(a) Latex products and their processing(b) Rubber foams and their formation mechanism. 07
- (ii) Explain the wet spinning and dry spinning processes of fibre production. 07

**OR**

- (i) Evaluate the structural advantages conferred by Filament Winding and Pultrusion composites. Explain the primary difference in how reinforcement fibers are oriented and utilized. 07
- (ii) Explain the purpose of mastication in rubber processing. Analyze the specific role of vulcanization additives in enabling the manufacture of highly elastic products like seals and O-rings. 07

**Question-5 Attempt any seven out of twelve.**

- 1) What is drooling in injection moulding? 02
- 2) What do you mean by fusion mechanism in thermoplastics? 02
- 3) Mention two factors affecting processability of polymers. 02
- 4) Define shot capacity in injection moulding. 02
- 5) Mention any two process variables in blow moulding. 02
- 6) What is SMC? 02
- 7) What is the purpose of vulcanizing agents? 02
- 8) What is drawing in fibre processing? 02
- 9) Name any two curing agents used for thermosets. 02
- 10) What is the main purpose of heating zones in an extruder? 02
- 11) State the function of the barrel and screw in an extruder. 02
- 12) Mention advantages of rotational moulding. 02

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