

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3173619**Date:10-01-2023****Subject Name:Polymer Blends and Composties****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|-----|---|-----------|
| Q.1 | (a) | Define the followings:
1) Homologous Polymer blend 2) Compatible polymers blend 3) Immiscible polymer blends | 03 |
| | (b) | What do you mean by polymer toughening? Explain it with suitable example. | 04 |
| | (c) | What are composites? Give difference between alloys/blends and Composites. | 07 |
| Q.2 | (a) | What are Blends and Alloys? Discuss. | 03 |
| | (b) | Discuss properties and applications of PVC/NBR & PC/PBT. | 04 |
| | (c) | Which are the properties and applications of PC/ABS Blends? Discuss | 07 |
| OR | | | |
| | (c) | Explain the detailed mechanism of blending. | 07 |
| Q.3 | (a) | Write down the applications of nanocomposite materials. | 03 |
| | (b) | Describe the properties and application of PPO/HIPS blends. | 04 |
| | (c) | Explain the significance of Gas lattice model in blends. | 07 |
| OR | | | |
| Q.3 | (a) | Discuss: Blends of Polymers & rubbers | 03 |
| | (b) | Mention the advantages and limitations of polymer matrix composites over MMC and CMC. | 04 |
| | (c) | Explain the factors affecting miscibility of polymer blends. | 07 |
| Q.4 | (a) | List out the equipment's used for blending. | 03 |
| | (b) | Discuss various blends used to improve barrier properties for Packaging applications. | 04 |
| | (c) | Explain Thermodynamic miscibility of polymer blends by phase diagram. | 07 |
| OR | | | |
| Q.4 | (a) | Explain the blending of PVC/NBR. | 03 |
| | (b) | Give the classification of composites. | 04 |
| | (c) | List various techniques for preparation of polymer blends and explain. | 07 |

- Q.5** (a) How to do compounding for rubber blending? **03**
(b) Write down the fundamentals of polymer mixing. **04**
(c) Write a short note on Thermoplastic Elastomers. **07**

OR

- Q.5** (a) Write down the application of composite material. **03**
(b) Write a short note on Characterization of polymer blends. **04**
(c) Explain polymer blend flow through contraction with neat diagram. **07**
