

This paper contains two printed pages

1. Sl. No. of Question Paper: 2371

Name of Department: ~~Polymer Science (Chemistry)~~

5. Semester: IV

F-4

2. Unique paper code: 1141402

3. Name of paper: Polymer Testing

4. Name of course: B. Tech. (Polymer Science)

Time: 3 hrs

Max marks: 75

Note: Attempt five questions in all. Question No. 1 is compulsory. Draw neat and labeled diagram where ever necessary. Log table and simple calculator are allowed.

1.
 - a. Compare accurate and precise result with example.
 - b. Discuss the WTR testing for the plastics.
 - c. Write the testing methods of critical temperature index.
 - d. Explain izode impact strength? and its measuring procedure.
 - e. Compare short term and long term strength in brief.
 - f. Describe dynamic aging of plastics.
 - g. Explain the rubber like elasticity of amorphous polymer.
 - h. Explain 'abrasion resistant' test with its some examples.
 - i. With the help of suitable curves explain following (i) Stiffness (ii) Resilience (iii) Strength of a polymer in brief. (9x3=27)

2.
 - a. What is linear thermal expansion? Explain its measuring procedure.
 - b. Explain the Flexural strength of plastic.
 - c. Discuss compression strength test with specification of specimen and suitable examples. (4+4+4)

3.
 - a. What is melt flow index? How can you check MFI of polymeric materials?
 - b. Discuss the different factors influencing test results in optical properties of polymers.
 - c. Discuss the relations between mechanical properties and structure of a polymer. (4+4+4)

4.
 - a. What is natural weathering of plastic and how this can be measure?
 - b. Describe the test procedure for Vica Softening Temperature (HDT)
 - c. Discuss in detail four points flexural strength test methods. (4+4+4)

5.
 - a. Explain the role of standardization organizations with selective examples.
 - b. Discuss the creep properties of a polymer with brief measuring procedure.
 - c. Describe the Optical permeability measuring procedure along with influencing factors. (4+4+4)

6.
 - a. Discuss working of falling weight impact test of a plastic material.
 - b. Define the degree of yellowness and also list of its importance.
 - c. Calculate the resistance of polycarbonate with yield strength $60.05 \times 10^6 \text{ N/M}^2$ and elastic modulus $20.13 \times 10^8 \text{ N/M}^2$. (6+3+3)

7. Write short notes on any three:
 1. Tear resistance
 2. Thermal diffusivity.
 3. Solution and Inherent Viscosity
 4. Gloss meter (4,4,4)