PAPER ID-310777

Subject Code: KPE054

Roll No: | | | | | | | | | | | | | |

**B. TECH**
**(SEM-V) THEORY EXAMINATION 2020-21**
**POLYURETHANE TECHNOLOGY**

***Time: 3 Hours*** ***Total Marks: 100***

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

## SECTION A

**1. Attempt *all* questions in brief.** **2 x 10 = 20**

| Q no. | Question | Marks | CO |
|---|---|---|---|
| a. | Name the polymers used in packaging. | 2 | 1 |
| b. | How to recognize use of packaging. | 2 | 1 |
| c. | ıs. | 2 | 2 |
| d. | What is cross linking in polyurethane? | 2 | 1 |
| e. | What are elastomer fibers? | 2 | 2 |
| f. | What is polyurethane casting system? | 2 | 1 |
| g. | Define adhesives builders. | 2 | 2 |
| h. | Write properties of rigid polyurethane foams. | 2 | 1 |
| i. | What are solid polyurethane materials? | 2 | 1 |
| j. | Define semi rigid molded foams. | 2 | 2 |

## SECTION B

**2. Attempt any *three* of the following:**

| Q no. | Question | Marks | CO |
|---|---|---|---|
| a. | Discuss wax paper. | 10 | 2 |
| b. | Write the applications of PET polymers. | 10 | 1 |
| c. | Coextruded films for packaging of edible oils. | 10 | 1 |
| d. | Describe the metals used along with polymer films. What are their advantages and disadvantages? | 10 | 1 |
| e. | What are blowing agents and what for they are used? Discuss the requirements of blowing agents. | 10 | 2 |

## SECTION C

**3. Attempt any *one* part of the following:**

| Q no. | Question | Marks | CO |
|---|---|---|---|
| a. | Describe Polyethylene or Polystyrene foams. Discuss the properties and applications. | 10 | 3 |
| b. | What are blowing agents and what for they are used? Discuss the requirements of blowing agents. | 10 | 5 |

**4. Attempt any *one* part of the following:**

| | | | |
|---|---|---|---|
| a. | Explain manufacturing of polyurethane. | 10 | 1 |
| b. | Describe design principles of polyurethane processing equipment. | 10 | 1 |

**5. Attempt any *one* part of the following:**

| | | | |
|---|---|---|---|
| a. | Give some important application of rigid polyurethane. | 10 | 1 |
| b. | Explain polyurethane casting systems (cast elastomers and casting resins) | 10 | 1 |

**6. Attempt any *one* part of the following:**

| | | | |
|---|---|---|---|
| a. | Discuss polyurethane skin integral foam- production, properties, applications. | 10 | 3 |
| b. | Explain environment health and safety regarding polyurethane. | 10 | 3 |

**7. Attempt any *one* part of the following:**

| | | | |
|---|---|---|---|
| a. | Discuss steps in the polyurethane processing Flexible foams. | 10 | 3 |
| b. | Give characterization, physical/mechanical, temperature dependence, chemical performance, combustibility. | 10 | 1 |