

**B.E. PRINTING ENGINEERING SECOND YEAR FIRST SEMESTER  
SUPPLEMENTARY EXAM 2023**

**Subject : PACKAGING TECHNIQUES-I**

**Time: 3 Hr.**

**Full Marks: 100**

**Answer the questions under one CO together in one place.**

**CO1: Describe the different packaging aspects, materials and processes (K2) [Total Marks – 35]**

**1. Answer any 5 questions**

- |   |          |
|---|----------|
| a) Describe properties and uses of HDPE, nylon and PET in packaging.                                  | <b>7</b> |
| b) Describe different environmental influences on the product that need to be protected by packaging. | 7        |
| c) Describe any 4 types of packaging papers with their applications in packaging.                     | 7        |
| d) Describe the wood drying processes.  | 7        |
| e) Describe the bacterial life cycle in connection to the aseptic packaging.                          | 7        |
| f) Describe the structure of packaging paper boards with required diagrams.                           | 7        |
| g) Describe the different ways to attain MAP.   | 7        |

**CO 2: Illustrate the methods of different package forming (K2) [Total Marks – 35]**

**2. Answer any 5 questions**

- |   |   |
|---|---|
| a) Illustrate the plastic blown film making process.    | 7 |
| b) Illustrate the DRD can making process.               | 7 |
| c) Illustrate thermoforming process.                    | 7 |
| d) Illustrate the injection blow molding process.       | 7 |
| e) Illustrate vertical FFS process.                     | 7 |
| f) Illustrate structure of any 3 types of wooden boxes. | 7 |
| g) Illustrate the structure of any 3 types of closures. | 7 |

**(P.T.O)**

**CO 3: Calculate the packaging parameters (K3) [Total Marks – 15]**

**Answer any 3 questions**

3. Calculate the MOR for a wood plant which is subjected to a load of 300Pa, length of 20inch, width of 2inch and height of 1.5inch. 5

[ Turn over

Ref. No.: Ex/PRN/PC/B/T/214/2023(S)

4. Calculate the thermal stress of a 1inch thick glass bottle for which the internal and external temperatures are 2<sup>0</sup>C and 20<sup>0</sup>C, respectively. 5
5. Explain the Taber stiffness testing method. 5
6. How many 6d box nails will be needed to make a wooden box to carry 50lb load and made with the wooden plank of width 0.75inch? 5

**CO 4: Compare between packaging materials and processes (K4) [Total Marks – 15]**

**Answer any 3 questions**

7. Compare between auger filling and vacuum filling. 5
8. Compare between glass and metal in context of packaging materials. 5
9. Compare between extrusion moulding and injection moulding. 5
10. Compare between paper board and corrugated board. 5

-----XXXXXXXXXXXXXXXXX-----