Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14FP2037** | **Duration :** | **3hrs** |
| **Sub. Name :** | **TECHNOLOGY OF PACKAGING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe how food packaging counteracts the following factors from affecting food quality.  i. Temperature ii. Water Activity iii. Oxygen iv. Natural Ageing v. Microorganisms | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Brief about the various types of metal cans used in food packaging. | CO2 | 5 |
|  | b. | Describe the stages and operations involved in three-piece can manufacturing with diagrams showing the steps involved. | CO2 | 15 |
|  |  |  |  |  |
| 3. | a. | Evaluate the different strategies used in food packaging and illustrate with examples. | CO1 | 10 |
|  | b. | Summarize the functions of packaging in food industry and their importance. | CO1 | 10 |
| (OR) | | | | |
| 4. |  | Discuss the principle and manufacturing stages with diagrams for the following methods. Also appraise the applications of the methods.  a. Injection moulding | CO2 | 10 |
|  |  | b. Injection blow moulding | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Review the process of glass manufacturing from silica and cullet with a flow chart. | CO2 | 5 |
|  | b. | Explain the stages and processes involved in glass container manufacturing by press and blow process with diagrams. | CO2 | 15 |
| (OR) | | | | |
| 6. | a. | Define paper board. Review the various types of paper board products used in food packaging with applications. | CO2 | 10 |
|  | b. | Define coating process involved in flexible plastic films. Explain the method with a diagram to show the orientation in MD and TD. | CO2 | 10 |
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| 7. | a. | Evaluate the types pouches used for packaging in various sectors of food industry. | CO1 | 5 |
|  | b. | Explain the construction, working and advantages of vertical form-fill-seal machine. | CO1 | 15 |
| (OR) | | | | |
| 8. | a. | Define the types of seals used for sealing of plastic films. | CO1 | 6 |
|  | b. | Elaborate the process, equipment and methodology involved in impulse sealing of plastic films. | CO1 | 14 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. | a. | Compare active and passive methods of modified atmosphere packaging. | CO3 | 5 |
|  | b. | Discuss the various moisture absorbents and scavengers used for maintaining freshness in active packaging of foods. | CO3 | 15 |