

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2012 Admission  
VII<sup>th</sup> Semester Final Examination-January -2016

Cat. No: Fdpr 4105

Marks: 80.00

Title: Food packaging Technology(2+1)

Time: 3 hours

## I Choose the correct answer

(10 x 1=10)

1. Modern food packaging era began with .....  
a. canning b. retorting c. bottling d. heat sealing
2. Food contacts packaging material in .....  
a. primary packaging b. secondary packing c. tertiary packing d. quaternary packing
3. Corrugated paper board has  
a. tubular structure b. cellular structure c. hole structure d. solid structure
4. Body of heat insulated paper cup's inner surface is coated with  
a. foamed modified LDPE b. unfoamed modified LDPE c. modified LDPE  
d. unfoamed modified LLDPE
5. Thickness of aluminum foil normally used in aseptic packaging is  
a. 7-11 micron b. 15-29 micron c. 10-20 micron d. 40-50 micron

## Fill in the blanks:

6. Boxed beef concept is .....
7. Major ingredient of glass is .....
8. WVTR stands for .....
9. DWI can means .....
10. Melting point of PP is .....

## II Answer any ten questions

(10 x 3=30)

1. Explain the functions of packaging material
2. List the factors affecting shelf life of food
3. Differentiate packaging and packing
4. Differentiate LDPE and HDPE
5. What are the advantages of glass bottles?
6. What are the raw materials used in paper board manufacture?
7. What are the functions of closures of glass container?
8. What are the advantages of aseptic packaging?
9. Explain the function of cushioning material in packaging
10. Explain the various steps involved in two-piece can manufacture

11. Discuss the points to be considered in selection of food packaging materials
12. Discuss various packaging laws and regulation in India

**III Answer any Six questions**

**(6 x 5=30)**

1. Explain working of vacuum packaging machine
2. Write a note on corrugated fibre board boxes
3. Discuss lamination & sealing techniques of packaging materials
4. Discuss the three piece can manufacturing process
5. Write a note on testing of packaging materials
6. Explain in detail about retort packaging
7. Calculate the total permeability of  $O_2$  at 30°C of a multilayer film with the following structure

| Details | Polymer | P MI cm cm <sup>-2</sup> sec <sup>-1</sup> | Thickness (μm) |
|---------|---------|--|----------------|
| Layer 1 | LDPE    | 55   | 50             |
| Layer 2 | Nylon 6 | 0.18                                       | 20             |
| Layer 3 | LDPE    | 55   | 50             |

8. Explain disposal and recycling of packaging wastes

**IV Answer any one question**

**(1 x 10=10)**

1. Explain in detail about various types of flexible packaging materials
2. Explain in detail about various printing methods