



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech (FT)/SEM-7/FT-701/2011-12**

**2011**

**FOOD PACKAGING TECHNOLOGY**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

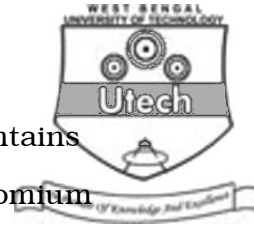
**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :  $10 \times 1 = 10$

- i) The principal ingredient of glass is
  - a) Calcium oxide
  - b) Alumina
  - c) Silica
  - d) Potash alum.
- ii) An example of antioxidant is
  - a) BHT
  - b) PVC
  - c) ETP
  - d) LDTP.
- iii) Common lubrication system for tin plate uses
  - a) Dioctyl sebacate ( DOS )
  - b) Linseed oil
  - c) Grease
  - d) Wax.

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- iv) The surface of tin free steel ( TFS ) contains
  - a) Chromium oxide                      b) Chromium
  - c) Steel                                      d) Oil.
- v) For greater strength pure aluminium is alloyed with
  - a) Magnesium                              b) Zinc
  - c) Copper                                      d) Chromium.
- vi) Two-piece cans are prepared by
  - a) Double seaming                      b) DWI
  - c) Welding                                      d) Soldering.
- vii) Blow molding process is used for the production of
  - a) Rigid bottles                              b) Plastic trays
  - c) Plastic tub                                      d) None of these.
- viii) Ideal shipping container for biscuit is
  - a) paper board                              b) flexible pouch
  - c) glass jar                                      d) aluminium container.
- ix) The most ideal packaging material for instant coffee is
  - a) Alfoil                                      b) PET
  - c) LDPE                                      d) Paper.
- x) Inner layer of a laminate for food pouches preferably consists of
  - a) LDPE                                      b) PP
  - c) Nylon film                                      d) All of these.
- xi) Biodegradable film can be produced from
  - a) LDPE                                      b) Chitosan
  - c) PP    d) PVC.



xii) Recommended packaging material for packing fats and oils is

- |          |          |
|----------|----------|
| a) HDPE  | b) LLDPE |
| c) Nylon | d) PP.   |

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

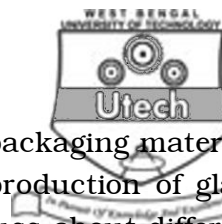
2. With a neat sketch, outline the operations of FFS machine ( horizontal or vertical ).
3. What are the different kinds of flexible containers ? Mention their characteristic features with examples of food packaging.  $1 + 4$
4. What is Modified atmosphere packaging ( MAP ) ? What are the packaging films commonly used for MAP ? Is there any difference in Controlled atmosphere packaging and MAP ?
5. Write a note on biodegradable and edible packaging materials.
6. What is co-extrusion is making laminates ? Discuss the essential requirements for making the laminates.

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. Discuss the various functions of food packaging materials. What do you understand by primary, secondary and tertiary packaging ? Mention a few packaging regulations.  $5 + 6 + 4$



8. Comment on the usage of “glass” as food-packaging material. Describe the manufacturing process for production of glass containers from molten glass. Briefly discuss about different methods for the manufacture of rigid and semi-rigid plastic containers. 8 + 7
9. Elaborate rotogravure, flexographic and screen printing ( with a neat sketch, if required )
- “Environmental and cost considerations made a significant impact in selection of packaging materials.” Justify the statement with a brief overview. 7 + 8
10. Write down the basic differences between the thermosetting and thermoplastic polymers with respect to food packaging.
- Recommend suitable packaging material for the following food items with proper justification
- a) Butter and cheese
  - b) Carbonated beverage
  - c) Paneer
  - d) Fresh orange for transport
  - e) Extruded snacks
  - f) Sunflower oil. 3 + ( 6 × 2 )
11. a) Write a note on “Tetra pack”.  
b) Discuss scalping phenomenon.  
c) State what you mean by optical tests of packaging materials. 5 + 5 + 5
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