Name : ……………………………………………………

Roll No. : ……………………………………………………

Invigilator's Signature : ……………………………………

CS/M.Tech(FT)/SEM-2/MFT-204C/2012
2012
PACKAGING TECHNOLOGY IN FOOD

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 the following : 10 × 1 = 10

    i) Aluminium foil in a composite laminate is used to give barrier against

       a) oxygen   b) light

       c) moisture vapour   d) aroma.

    ii) Best unit packaging material for pickles is

       a) glass   b) tin can

       c) LDPE pouch   d) all of these.

    iii) DRD and DWI methods are adopted in production of

       a) two-piece can

       b) three-piece can

       c) blow-moulded bottle

       d) all of these.

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iv) Novel MAP is successful in packaging of

    a) fish and poultry products

    b) raw chicken meat

    c) fruits and vegetables

    d) all the fresh produce.

v) The most used tracer gas in leak-detection techniques is

    a) hydrogen   b) nitrogen

    c) argon   d) carbon-di-oxide.

vi) Role of paper in making laminates is

    a) to provide rigidity

    b) to provide barrier property

    c) to provide glossy appearance

    d) to provide printability.

vii) Polystyrene container is an example of

    a) rigid container   b) flexible container

    c) semirigid container   d) all of these.

viii) A perfect example of rigid container is

    a) metal can   b) PET bottle

    c) glass container   d) all of these.

ix) Scalping is basically a phenomena in between

    a) environment and packaging material

    b) packaging material and foodstuff

    c) foodstuff and environment

    d) laminates and food flavour.

x) Flavoured milk can be best packed in

    a) LDPE pouch   b) laminated pouch

    c) paper pouch   d) HDPE pouch.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following.   3 × 5 = 15

2. Write short notes on any *two* of the following : $2 \times 2\frac{1}{2}$

    a)   Eco-regulations

    b)   Composite containers

    c)   Types of Glass.

3. Discuss the role of CO_2 in preservation of packed food items in modified atmosphere packaging.

4. Define the following : $2 \times 2\frac{1}{2}$

    a)   Optical test of packaging materials

    b)   Leak detection techniques for MAP.

5. Substantiate use of laminate in packaging of specialty food items. What are the different methods of lamination ? Describe briefly.

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following.   3 × 15 = 45

6. Write in detail the total packaging system for a particular product form Unit, Intermediate and Bulk / Transport packaging. Also explain the selection of bulk packaging taking into consideration the Transport Hazards.

7. Define active packaging. What is meant by intelligent packaging ? Give some examples of Active and Intelligent packaging available in the market. What are the fundamentals behind active and intelligent packaging ?

8. What are laminates ? Explain in brief the common methods of lamination ? List four commonly used laminate structures with their applications.

9. What do you mean by Migration Studies ? How it is important in packaging ? Explain in detail the Extractability studies in packaging. What is the limit of Extractability values globally ?

10. What are the features of novel modified atmosphere packaging ? Highlight its benefits achieved over normal MAP ? What are the probable mechanisms of effectiveness of novel MAP ? Discuss different factors for successful implementation of novel MAP.

11. "Modified Atmosphere Packaging is a mild preservation method" — Justify the statement. How MAP can be made a robust preservation method combining with other food preservation techniques ? Elaborate with proper case study in each case.

12. What are the major deteriorative factors to be considered during storage of fresh fruits and vegetables ? Elaborate loss of any one parameter in detail and also highlight role of active packaging in retaining the quality of fruits and vegetables with respect to that parameter.

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