

**MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR**  
**SEMESTER END THEORY EXAMINATION, B. Tech. Dairy Technology 2019-20**

Semester	: V (V Dean)	Academic Year	: 2019-2020
Course No.	: DT-508	Course Title	: Packaging of Dairy Products
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Friday, 10.01.2020	Time	: 11.00 to 13.00 Hrs.

- Note :**
- 1) All questions from **Section 'A'** are compulsory.
  - 2) Solve **Any Three** questions from **Section 'B'**.
  - 3) Draw neat and well labelled diagram wherever necessary.

**SECTION –‘A’**

- Q. 1    A) Choose the most appropriate answer from the options given below. (05)
- i) Hermetically sealed containers are essential for .....
    - a) Vacuum pressure packaging
    - b) Flexible Packaging
    - c) Aseptic Packaging
    - d) Controlled atmosphere packaging
  - ii) Polymers used in food packaging allow the transfer of moisture and gases or water vapour directly through them by a process known as .....
    - a) Degradation
    - b) Vulcanization
    - c) Co-polymerization
    - d) Permeation
  - iii) Full form of LDPE .....
    - a) Linear density Polyethylene
    - b) Low Density polyesters
    - c) Large density Polyethylene
    - d) Low Density Polyethylene
  - iv) In barcoding, the country code used for India is .....
    - a) 890
    - b) 489
    - c) 391
    - d) 905
  - v) The chemical used as ethylene scavenger in active packaging is .....
    - a) Acetylene
    - b) Potassium Permanganate
    - c) Citric acid
    - d) Ether
- B) Define the following. (05)
- i) Intelligent Packaging
  - ii) Bio-degradable packaging
  - iii) Packaging
  - iv) Aseptic packaging
  - v) Eco friendly packaging
- Q. 2    A) Give reasons for the following. (05)
- i) Vacuum packed foods have higher shelf life.
  - ii) Potassium permanganate is used in ethylene scavenger active packaging system.
  - iii) Bleaching is necessary for the manufacture of paperboard.
  - iv) Hermetically sealed containers are essential for Aseptic Packaging.
  - v) Labelling is an important aspect in food packaging.

- B) State whether True or False. If false, rewrite the statement after making necessary corrections in underlined words. (05)
- i) Thickness of vegetable parchment paper used for butter packaging is 45 gsm.
  - ii) BOPP stands for Biaxially oriented polypropylene.
  - iii) Primary container is one that comes in direct contact with food.
  - iv) MAP is a form of active packaging which removes undesired compounds such as oxygen, carbon dioxide, ethylene and other specific compounds.
  - v) For ghee packaging, LDPE with thickness of 85 micron is used.

#### SECTION –‘B’

- Q. 3 A) Explain the aseptic packaging along with diagram and different aseptic packaging systems. (05)
- B) Application of MAP in extending shelf life of food products. (05)
- Q. 4 A) Explain in tabular form different types of active packaging systems along with material used and application. (05)
- B) What is barcoding? Mention its importance and also discuss three barcode symbologies. (05)
- Q. 5. A) Briefly explain the vacuum packaging technique along with diagram and advantages. (03)
- B) Write Short notes on edible packaging along with advantages. (03)
- C) Techniques used for disposal of waste package materials. How these can help to reduce environmental pollution? (04)
- Q. 6 A) Write the properties of paper, cardboard and aluminium foil. (03)
- B) Differentiate between package, packing and packaging. (03)
- C) Explain edible packaging, its advantages and materials used for edible packaging. (04)
- Q. 7 What is packaging? Discuss importance of packaging in dairy industry and enlist the different packaging materials used for different dairy and traditional dairy products. Also give your opinion on the use of plastics as food packaging. (10)

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