Roll No:

2023
B.Tech.
7th Sem.

B.Tech. Food Technology
Semester VII – Examination, 2023
Paper Title: Food Packaging Technology
Paper Code: BFTC-701

Time: 3 hours *Maximum Marks: 75*

Note: *1. All the questions of Section A are compulsory.*
2. Attempt any five questions from Section B.
3. Attempt any two questions from Section C.

Section A (15x1=15)

I. Choose the appropriate answer for the following multiple choice questions:

1. What is the primary function of packaging?
   a) Aesthetic appeal b) Protection and containment
   c) Advertising d) Environmental sustainability
2. Which of the following is a type of flexible packaging material?
   a) Glass b) Tinplate
   c) Paper d) Plastic film
3. In the tinning process, what does tinplate refer to?
   a) Coating tin on paper b) Coating tin on glass
   c) Coating tin on aluminum d) Coating tin on steel
4. What is the primary role of closures in glass packaging?
   a) Aesthetic enhancement b) Sealing and preserving product integrity
   c) Improving tensile strength d) Facilitating recycling
5. Which material is commonly used in the production of tinplate containers?
   a) Aluminum b) Steel
   c) Plastic d) Glass
6. What is the primary purpose of lacquers in packaging?
   a) Enhancing transparency b) Improving tensile strength
   c) Providing a protective coating d) Adding color
7. The tearing resistance of packaging materials is crucial to prevent:
   a) Permeability b) Impact strength
   c) Puncture resistance d) Damage during handling
8. What does GTR stand for in the context of packaging materials?
   a) Gas Transfer Ratio b) Gas Transmission Rate
   c) Glass Transition Range d) Global Transportation Requirement
9. Time Temperature Indicators (TTIs) are used in packaging for:
   a) Aesthetic purposes b) Monitoring product freshness
   c) Increasing tear strength d) Improving impact resistance
10. What is the main function of active packaging?
    a) Enhancing color appeal
    b) Providing information on temperature changes
    c) Protecting against oxygen, ethylene, and carbon dioxide
    d) Adding fragrance to the product
11. Modified Atmosphere Packaging (MAP) aims to:
    a) Increase permeability b) Extend the shelf life of food products
    c) Enhance tear strength d) Improve impact resistance

12. Vacuum packaging is effective in removing:
    a) Moisture b) Oxygen
    c) Carbon dioxide d) All of the above
13. Aseptic packaging involves the sterilization of:
    a) Only the product b) Only the packaging material
    c) Both a) and b) d) Neither a) nor b)
14. Biodegradable films in packaging are designed to:
    a) Degrade over time b) Enhance tear strength
    c) Improve puncture resistance d) Increase tensile strength
15. The primary purpose of labeling in packaging is to:
    a) Provide information on materials used b) Enhance visual appeal
    c) Increase permeability d) Improve tear strength

Section B (5x6=30)

II. Attempt *any five* questions of the following:

a) Explain the functions of packaging and how they contribute to the marketing of products.
b) Compare and contrast the properties of paper, glass, and metals as packaging materials.
c) Describe the tinning process involved in the production of tinplate containers.
d) Discuss the theory of permeability and its importance in understanding the barrier properties of packaging materials.
e) Explain the concept of active packaging, focusing on the role of scavengers like oxygen and carbon dioxide.
f) Discuss the significance of Time Temperature Indicators (TTIs) in intelligent packaging.
g) Provide a comprehensive overview of antimicrobial food packaging, highlighting its significance and the types of non-migratory bioactive polymers used in this context.

Section C (2x15=30)

III. Attempt *any two* questions of the following:

a) Enlist and discuss the various types of plastic films and laminated plastic materials used in packaging, with examples.
b) What is the role of Modified Atmosphere Packaging (MAP) and Controlled Atmosphere Packaging (CAP) in preserving food products? Discuss the advantages and limitations of each.
c) Discuss the steps involved in the two and three piece can manufacturing process.

BTL, CO and PO mapping of the questions:

Section A	Mapping	Section B	Mapping	Section B	Mapping
I	BTL1,2; CO2,3,4,5,6,7; PO1,2,4,5	II a)	BTL4 ;CO3 ;PO1	III a)	BTL5 ;CO5 ;PO2
		b)	BTL2 ;CO6 ;PO4	b)	BTL5 ;CO3 ;PO2
		c)	BTL2 ;CO2 ;PO2	c)	BTL4 ;CO6 ;PO4
		d)	BTL4 ;CO3 ;PO4		
		e)	BTL2 ;CO4 ;PO1		
		f)	BTL5 ;CO5 ;PO2		
		g)	BTL4 ;CO6 ;PO2		