STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86
(For candidates admitted from the academic year 2023 – 2024 and thereafter)

B.VOC DEGREE EXAMINATION, APRIL 2026
B.VOC. FOOD PROCESSING AND QUALITY CONTROL
FOURTH SEMESTER

COURSE : MAJOR ELECTIVE
PAPER : FOOD PACKAGING
SUBJECT CODE : 23VF/VE/FP45
TIME : 3 HOURS **MAX. MARKS: 100**

Q. No.	SECTION A Answer ALL questions: (10 x 2 = 20)	CO	KL
1.	Define food packaging.	1	1
2.	List any two functions of packaging.	1	1
3.	Differentiate between primary and secondary packaging.	1	1
4.	What is corrugated fiber board (CFB)?	1	1
5.	Define Tin Free Steel (TFS).	1	1
6.	What is aseptic packaging?	1	1
7.	List any two types of plastic films used in food packaging .	1	1
8.	Define Modified Atmosphere Packaging (MAP).	1	1
9.	What is Water Vapour Transmission Rate (WVTR)?	1	1
10.	Define Gas Transmission Rate (GTR).	1	1
Q. No.	**SECTION B** **Answer ALL questions : (8 x 5 = 40)**	**CO**	**KL**
11.	A) Explain the need and importance of food packaging. **(OR)** B) Explain how tensile strength, bursting strength, tearing resistance, and puncture resistance influence the selection of packaging material for high-fat foods.	2	2
12.	A) A food product is highly sensitive to oxygen and moisture. Suggest suitable packaging materials based on barrier properties and explain your choice. **(OR)** B) Explain the types of packaging: primary, secondary, and tertiary with examples.	2	2
13.	A) Explain the properties, advantages, and disadvantages of glass containers. **(OR)** B) Describe the methods to measure Gas Transmission Rate (GTR) and Water Vapour Transmission Rate (WVTR) and explain how these properties affect shelf life of packaged foods.	2	2
14.	A) Describe the types of metal cans used in food packaging. **(OR)** B) Explain corrugated fiber board and flexible laminates as paper-based packaging materials.	2	2

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15.	A) Discuss the advantages and limitations of aluminum containers in food packaging. **(OR)** B) A manufacturer wants to pack a dry snack with a shelf life of 6 months. Analyze which packaging material you would select and why, considering mechanical and barrier properties.	3	3
16.	A) Describe laminated plastic materials and their advantages. **(OR)** B) Explain the migration test and its importance in ensuring the safety of packaged food products. Give an example of a situation where migration testing is essential.	3	3
17.	A) Discuss the concerns of BPA in plastics and its effect on food safety. **(OR)** B) How do temperature, humidity, and thickness affect the permeability of packaging materials? Provide examples of food products where these factors are critical.	3	3
18.	A) Explain how impact strength and tear strength are evaluated for flexible packaging films used in snack food packaging. **(OR)** B) Explain the packaging methods used for meat, poultry, and seafood, including vacuum and MAP packaging.	3	3
	SECTION C		
Q. No.	**Answer any TWO questions: (2 x 10= 20)**	**CO**	**KL**
19.	**Design a suitable packaging system for frozen foods.** Include type of packaging material, form (rigid/semi-rigid/flexible), barrier requirements, and explain why each choice is appropriate.	4	4
20.	**Compare and contrast packaging methods for meat, poultry, and seafood.** Discuss vacuum packaging, modified atmosphere packaging (MAP), and shrink wrapping with examples and advantages/disadvantages.	4	4
21.	**A food company wants to package dehydrated fruits for retail and export.** Propose a packaging solution considering shelf life, moisture control, barrier properties, and labeling requirements.	4	4
22.	**Evaluate different packaging systems for fresh fruits and vegetables.** Analyze the effectiveness of MAP, ventilated crates, and semi-rigid containers in maintaining quality and reducing spoilage during storage and transport.	4	4

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Q. No.	SECTION D Answer any ONE questions: (1 x 20 = 20)	CO	KL
23.	**"Biodegradable and edible packaging materials are the future of sustainable food packaging."** 1. Critically evaluate this statement. 2. Discuss different types of biodegradable and edible packaging materials. 3. Compare their advantages and limitations with conventional plastics. 4. Include their role in food safety, shelf life, and environmental impact. 5. Suggest suitable applications for various food products.	5	5
24.	**"Recent technological trends like nanoparticles, smart packaging, and active packaging are revolutionizing the food packaging industry."** 1. Analyze the principles and applications of these technologies. 2. Discuss how they improve food quality, shelf life, and safety. 3. Evaluate the potential benefits and challenges in implementing these technologies at an industrial scale. 4. Provide examples of products where these packaging innovations are currently used.	5	5

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