

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2026
(Second Semester)

Branch - FOOD TECHNOLOGY MANAGEMENT

FOOD TOXICOLOGY AND SAFETY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which among the following is considered a biological hazard in food? (i) Glass shards (ii) Persiticide residue (iii) Salmonella bacteria (iv) Naturally occurring toxins	K1	CO1
	2	In food safety, what does the acronym GRAS represent? (i) Generally recognized as safe (ii) Global Regulation And Standards (iii) Good Regulatory Assessment Standards (iv) Globally Recognized As secure	K2	CO1
2	3	Which of the following represents a primary route of toxicant exposure? (i) Biotransformation (ii) Ingestion (iii) Excretion (iv) Accumulation	K1	CO2
	4	What does 'Teratogenesis' refer to? (i) The induction of structural or functional defects in a developing foetus (ii) The creation of cancer cells (iii) The alteration of DNA in adults (iv) The breakdown of liver enzymes	K2	CO2
3	5	Gossypol is a naturally occurring toxicant predominantly found in _____ (i) Soybeans (ii) Cotton seeds (iii) Potatoes (iv) Mushrooms	K1	CO3
	6	Protease, amylase, and lipase inhibitors are natural plant chemicals that: (i) Enhance nutrient absorption (ii) Interfere with the body's digestive enzymes (iii) Promote rapid muscle growth (iv) Act as antibiotics	K2	CO3
4	7	Acrylamide is a toxicant that forms primarily during _____. (i) Freezing of vegetables (ii) High temperature processing of carbohydrate rich foods (iii) Fermentation of dairy products (iv) Harvesting of fruits	K1	CO4
	8	What does GMF stand for? (i) Generally Managed Foods (ii) Generally Modified Foods (iii) Global Manufacturing Facility (iv) Guaranteed Minimum Fat	K2	CO4
5	9	What does GCMS stand for? (i) Gas Centrifuge Mass Spectrometry (ii) Gas Chromatography - Mass Spectrometry (iii) General Chemical Mass System (iv) Global Contaminant Measuring Standards	K1	CO5
	10	Which of the following represents the correct progression of In-vivo toxicity tests? (i) Chronic, Acute, Intermediate, Preliminary (ii) Intermediate, Chronic, Preliminary, Acute (iii) Preliminary, Acute, Intermediate, Chronic (iv) Acute, Preliminary, Chronic, Intermediate	K2	CO5

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SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Discuss the food hazards and explain in detail the types and preventive measures with suitable examples.	K2	CO1
		(OR)		
	11.b.	Summarize the roles and functions of FSSAI and BIS in ensuring food safety in India.		
2	12.a.	Construct the sequential processes of absorption, distribution, and accumulation of toxicants within the biological system with suitable examples.	K3	CO2
		(OR)		
	12.b.	Identify the fundamental principles of the dose-response relationship and its importance in evaluating chemical toxicity with suitable examples.		
3	13.a.	Comprehend the physiological and toxicological effects of gossypol and lathyrogens.	K4	CO3
		(OR)		
	13.b.	Deduce the role and functions of natural compounds like oxalates, phytates, and tannins as antinutrients in the human diet.		
4	14.a.	Elaborate the chemical formation and associated toxicity of acrylamide and Polycyclic Aromatic Hydrocarbons (PAH).	K6	CO4
		(OR)		
	14.b.	Elaborate on the potential toxicity and the parameters for the safe use of common preservatives with suitable examples.		
5	15.a.	Explain the importance of evaluating toxic residues in agricultural yields through rigorous residual analysis with examples.	K5	CO5
		(OR)		
	15.b.	Evaluate the principle and usage of Nuclear Magnetic Resonance (NMR) as an advanced detection method for food-borne toxicants, with examples.		

SECTION - C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Illustrate the principles of HACCP and its implementation process in food processing industries.	K2	CO1
2	17	Explain in detail the dose-response relationship in toxicology, and explain how the LD50 and TD50 values were used to determine safety limits of chemical exposure.	K5	CO2
3	18	Determine the toxicological profiles, sources, mechanism of toxicity, and aetiology of naturally occurring alkaloids and cyanogens with suitable examples.	K5	CO3
4	19	Examine the toxicological risks associated with the use of food additives with potential carcinogenic effects, with suitable examples.	K4	CO4
5	20	Identify the principles and practical application of advanced chemical detection methods, such as HPLC, GCMs, in conducting residual analysis of food contaminants.	K3	CO5