

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - **NUTRITION, FOOD SERVICE MANAGEMENT AND DIETETICS**

FOOD SCIENCE

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	Function in the body is defined as the study of food A) Science B) Food science C) Diet D) Nutrition	K1	CO1
	2	The protein found in wheat is A) Albumin B) Niacin C) Gluten D) Fatty acid	K2	CO2
2	3	Which amino acid is lacking in pulses A) Lysine B) Methionine C) Leucine D) Isoleucine	K1	CO3
	4	An enzyme active during germination A) Papain B) Bromelain C) Amylase D) Renin	K2	CO3
3	5	Rohu and catla are varieties of A) Cattle B) Poultry C) Fish D) Goat	K1	CO3
	6	Which of the following constituent represents 70% of meat A) Water B) Carbohydrate C) Protein D) Fat	K2	CO2
4	7	Which chemical is used in artificial ripening of fruits A) Ethephon B) Benzene C) Methanol D) Alcohol	K1	CO1
	8	Tomato is red in colour due to A) Anthoxanthine B) Lycopene C) Tannin D) Chlorophyll	K2	CO2
5	9	Which of the following fat is considered as healthy fat A) Animal fat B) Trans fat C) Saturated fat D) Unsaturated fat	K1	CO3
	10	Ground nuts contains which mineral in high amount A) Calcium B) Iron C) Potassium D) Magnesium	K2	CO3

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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.	Choose the different types of cooking method?	K3	CO1
		(OR)		
	11.b.	Build a note on the formation of dough and batter.		
2	12.a.	Explain cheese preparation with flowchart.	K4	CO4
		(OR)		
	12.b.	Examine the factors affecting cooking quality of pulses.		
3	13.a.	Identify the post-mortem changes of meat.	K3	CO2
		(OR)		
	13.b.	Construct the classification of poultry.		
4	14.a.	Write the classification of vegetables.	K2	CO3
		(OR)		
	14.b.	Summarize the changes during ripening of fruits and storage of fruits.		
5	15.a.	Select the types and composition of nuts.	K3	CO4
		(OR)		
	15.b.	What are the factors affecting absorption of oil on cooking? Write note on factors affecting smoking point of oil.		

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	Discuss the principles of starch cookery.	K3	CO3
2	17	Analyze the egg foam formation. Examine the preservation and quality of egg.	K4	CO4
3	18	Describe the types, composition, selection and spoilage of fish.	K3	CO2
4	19	Explain the role of spices in Indian cookery. Give example for each.	K2	CO2
5	20	Identify the types of confectionery. Explain crystalline candies.	K3	CO3

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BSc DEGREE EXAMINATIO DECEMBER 2024
(First Semester)

Branch - NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS

FOOD CHEMISTRY

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 property of water allows it to exhibit high surface tension and cohesion? a) Hydrophobicity b) Hydrogen bonding c) Van der Waals forces d) Ionic bonding	K1	CO2
	2	Select the term that water is tightly bound to food molecules and not easily removed? a) Free water b) Bound water c) Bound moisture d) Surface water	K2	CO2
2	3	Find the two-phase system in which a liquid is dispersed in a solid. a. Foam b. Sol c. Gel d. colloid	K1	CO3
	4	Milk is colloid in which a _____ a. Solid is dispersed in a liquid b. Liquid is dispersed in a liquid c. Sugar is dispersed in a liquid d. Gas is dispersed in a liquid	K2	CO3
3	5	Choose the sugar distributed in sugarcane. a. Sucrose b. Maltose c. Lactose d. Cellobiose	K1	CO1
	6	Name the food stuff in which Isomalt is derived. a. Carrot b. Beetroots c. palm d. Corn	K2	CO1
4	7	Tell the partially degraded protein prepared from collagen. a. Gelatin b. Homogenization c. Precipitation d. Sol	K1	CO4
	8	Find the biomolecules present in Proteins. a. Fatty acids b. Amino acids c. Sugars d. Vitamins	K2	CO4
5	9	Addition of sodium bicarbonate reduces ----- of pulses a. Cooking pressure b. Cooking temperature c. Cooking time d. Cooking volume	K1	CO5
	10	Show the chemical leavening agent. a. Sodium carbonite b. Sodium sulphate c. Sodium bicarbonate d. nitrate	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.	Identify the factors affecting the boiling point of water.	K3	CO2
	(OR)			
	11.b.	Organise the concept of water activity.		
2	12.a.	Categorise the properties of colloids.	K4	CO3
	(OR)			
	12.b.	Analyse the physical characteristics of gel formation.		
3	13.a.	Pectic food substances helps to make fine jam and jellies Justify it.	K5	CO4
	(OR)			
	13.b.	Criticize the chemistry of starch.		
4	14.a.	Distinguish between browning & non browning reactions in foods.	K4	CO5
	(OR)			
	14.b.	Examine the manufacturing process of gelatin.		
5	15.a.	Explain the changes on pigments during cooking.	K5	CO3
	(OR)			
	15.b.	Evaluate the general characteristics of food enzymes.		

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	Classify nutrient and non nutrient components of foods.	K2	CO1
2	17	Organise the factors affecting foam formation and stability.	K3	CO4
3	18	Analyse the changes during fats and oils during cooking.	K4	CO5
4	19	Evaluate the role of egg protein in food chemistry.	K5	CO4
5	20	Elaborate on water soluble pigments.	K6	CO3

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - NUTRITION, FOOD SERVICE MANGEMNET & DIETETICS

CHEMISTRY- I

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry **EQUAL** marks

$$(10 \times 1 = 10)$$

Module No.	Question No.	Question	K Level	CO
1	1	Pick out the primary standard from the following a) KMnO_4 b) NaOH c) Sodium thio sulphate d) $\text{K}_2\text{Cr}_2\text{O}_7$	K1	CO1
	2	Which of the following is used as an indicator in the titration of a strong acid and a strong base? a) Phenolphthalein b) Methyl orange c) Thymol blue d) Starch	K2	CO1
2	3	Identify oxidation number of 'Mn' in KMnO_4 a) + 2 b) + 5 c) + 6 d) + 7	K1	CO2
	4	A co-ordinate bond is formed by a) complete transfer of electrons b) sharing of electrons contributed by both the atoms c) sharing of electrons contributed by one atom only d) mutual sharing of electrons	K2	CO2
3	5	The nature of an enzyme is a) Lipids b) Carbohydrates c) Fats d) Proteins	K1	CO3
	6	Isoelectric point is the pH at which a protein or an amino acid has a) Dipolar ion b) Cation c) Anion d) Dication	K2	CO3
4	7	Identify the antibiotic a) Penicillin b) Paracetamol c) Ether d) Aspirin	K1	CO4
	8	An organic compound exhibit colour due to the presence of a) Chromophore b) Auxochrome c) Salt forming group d) None of these	K2	CO4
5	9	The concept equivalent weight is used to calculate a) Molarity b) Normality c) Molality d) Mole fraction	K1	CO5
	10	It is only the absorbed light radiations that are effective in producing a chemical reaction." This is the statement of a) Lambert law b) Lambert-Beer law c) Grothus-Draper law d) Stark-Einstein law	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.	Explain the first aid procedure for accidents involving acids, alkali, cyanide and bromine.	K1	CO1
	(OR)			
	11.b.	Find the difference between. i) Mean and median ii) Absolute and relative error iii) Accuracy and precision		
2	12.a.	List the characteristics of ionic and covalent bonded compounds.	K1	CO2
	(OR)			
	12.b.	Recall Lowry-Bronsted and Lewis theory of acids and bases.		
3	13.a.	How do pyridine reacts with the following reagents? (2+2.5+2.5 Marks) i) H ₂ /Ni ii) NaNH ₂ at 100°C iii) Br ₂ at 300°C	K1	CO3
	(OR)			
	13.b.	Recall the various classification of amino acids.		
4	14.a.	Explain the following terms with an example: Antipyretics, antibiotics and antiseptic	K2	CO4
	(OR)			
	14.b.	Outline the preparation and uses of sulphapyridine and sulphadiazine.		
5	15.a.	Construct the buffer action of an acidic buffer and a basic buffer.	K3	CO5
	(OR)			
	15.b.	Identify the differences between physical adsorption and chemical adsorption.		

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	How errors are classified? Mention any four methods for the minimization of errors.	K1	CO1
2	17	What is hydrogen bond? Classify them with an example. Show the consequence of hydrogen bonding	K1	CO1
3	18	Show briefly primary and secondary structure of proteins.	K1	CO3
4	19	Classify dyes based on chemical structure and applications.	K2	CO4
5	20	Develop the concept of following light process with an example. i) Phosphorescence (3.5 Marks) ii) Fluorescence (3.5 Marks) iii) Chemiluminescence (3 Marks)	K3	CO5

Z-Z-Z ENDS

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch - **NUTRITION, FOOD SERVICE MNAAGEMENT AND DIETETICS**

PRINCIPLES OF NUTRITION

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 of the following factors can influence basal metabolic rate A) Age B) Gender C) Body composition D) All of the above	K1	CO2
	2	Which provides the greatest energy value per gram of nutrient A) Carbohydrate B) Protein C) Fat D) Starch	K2	CO5
2	3	Which of the following is the smallest carbohydrate- triose A) Ribose B) Glucose C) Glyceraldehyde D) Dihydroxyacetone	K1	CO3
	4	Which of the following is a reducing sugar A) Dihydroxyacetone B) Erythrulose C) Glucose D) All of the above	K2	CO2
3	5	How many amino acids make up a protein? A) 10 B) 12 C) 15 D) 20	K1	CO1
	6	Which of the following is an example for unsaturated fatty acids A) Lauric B) Linoleic C) Palmitic D) Myristic	K2	CO5
4	7	Which of the following vitamin is important for the formation of red blood cell A) Vitamin A B) Vitamin C C) Vitamin B12 D) Vitamin D	K1	CO1
	8	The commonly used vitamin complex is constituted by how many vitamins A) 8 B) 9 C) 10 D) 11	K2	CO2
5	9	Which of the following minerals controls growth and body weight A) Phosphorus B) Iodine C) Calcium D) All of the above	K1	CO3
	10	Pomegranate is rich in which minerals A) Calcium B) Sodium C) Phosphorus D) Manganese	K2	CO4

Cont...

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.	Define Basal metabolic rate and write a note on factors affecting basal metabolic rate.	K3	CO3
	(OR)			
	11.b.	Explain determine of energy requirement and factors affecting requirement.		
2	12.a.	Write on digestion and absorption of carbohydrates.	K4	CO4
	(OR)			
	12.b.	Discuss the water balance.		
3	13.a.	Write down the functions of lipids.	K3	CO3
	(OR)			
	13.b.	Discuss on essential fatty acids.		
4	14.a.	Briefly explain the functions of vitamin C and folic acid.	K2	CO1
	(OR)			
	14.b.	Give the properties, functions and sources of vitaminK.		
5	15.a.	Write about the functions and deficiency of calcium.	K3	CO4
	(OR)			
	15.b.	Write on food sources, deficiency and toxicity of selenium.		

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	Explain in detail about measurement of heat produced by body.	K3	CO3
2	17	Define dietary fibre. Write down the role of dietary fibre in health and disease.	K4	CO3
3	18	Explain various methods to measure quality of protein in the diet.	K4	CO4
4	19	Give an account of functions, RDA and deficiency of thiamine and riboflavin.	K2	CO2
5	20	Explain the food sources, functions, deficiency and toxicity of copper and zinc.	K3	CO3

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch - **NUTRITION, FOOD SERVICE MNAAGEMENT AND DIETETICS**

NUTRITION IN HEALTH

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	State – RDA for Indians are revised every a) 5 years b) 10 years c) 15 years d) Every year	K1	CO2
	2	Tell the Protein requirement of a heavy worker adult women a) 1g/kg/d b) 1.25g/kg/d c) 0.83g/kg/d d) 1.3g/kg/d	K2	CO3
2	3	Indicate the neural tube defect in infant is caused by the deficiency of ----- during pregnancy a) Iron b) Vitamin – B12 c) Zinc d) Folic Acid	K1	CO2
	4	Choose the amount of Sathumavu given to lactating mothers under ICDS programme a) 160g/day b) 120g/day c) 150g/day d) 200g/day	K2	CO4
3	5	Expand IUGR a) Infraumbilical Growth of hernia b) Intrauterine Growth Restriction c) Inter utero Growth Reversion d) Infectious Uterine Growth	K1	CO2
	6	Select the average weight gain of a child between one and two years of age a) 200-250g/month b) 300-400g/month c) 150-200g/month d) 400-500g/month	K2	CO1
4	7	Identify the ministry responsible for the mid-day meal programme a) Human Resource Development b) Women and Welfare c) Health and Hygiene d) Family Welfare	K1	CO4
	8	Find the peak height velocity age of boys a) 10-13 years of age b) 10-19 years of age c) 12-15 years of age d) 15-19 years of age	K2	CO1
5	9	Identify the criteria listed for a Reference Man? a) A man who weighs 65 kg b) A man with BMI of 24.5 c) Both A & B d) None of the Above	K1	CO1
	10	Identify the cause of Alzheimer's disease a) High CRP levels b) High Homocysteine levels c) High Cholesterol levels d) High Antioxidant levels	K2	CO3

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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.	Sketch down food pyramid and explain it.	K2	CO2
	(OR)			
	11.b.	Summarize the factors influencing human nutrition.		
2	12.a.	Describe the relationship that exist between maternal and foetal nutrition.	K2	CO1
	(OR)			
	12.b.	Pen down the process of stimulation of milk production.		
3	13.a.	Tabulate the undesirable effects of cow's milk on human infant.	K2	CO2
	(OR)			
	13.b.	Outline the feeding problems & feeding disorders of preschoolers.		
4	14.a.	Justify the importance of nutritious packed lunch for the growth of the children.	K3	CO4
	(OR)			
	14.b.	Infer the eating disorders of adolescent girls.		
5	15.a.	Brief note on the dietary guidelines given for adult women.	K2	CO2
	(OR)			
	15.b.	Explain nutrition related problems of old age.		

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	Plan a balanced diet for an adult man and justify your menu with the principles of menu planning.	K4	CO5
2	17	Enumerate the impact of nutritional deficiency on the outcome of pregnancy.	K2	CO1
3	18	Elaborate note on breast milk, its type and nutritional benefits.	K3	CO3
4	19	Prove the role of School Lunch Programmes in alleviating malnutrition.	K3	CO3
5	20	Interpret the changes in organ function with ageing that may influence nutrient requirement.	K2	CO1

Z-Z-Z

END

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)**

Branch - NUTRITION, FOOD SERVICE MANAGEMENT AND DIETETICS

FOOD PROCESSING

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 type of rice undergoes a steaming process before milling? a) White rice b) Parboiled rice c) Instant rice d) Broken rice	K1	CO1
	2	Show the primary utilization of rice milling by-products in agriculture. a) Animal feed b) Beverage production c) Medicine manufacturing d) Cosmetic industry	K2	CO1
2	3	Which system in wheat milling involves grinding the wheat kernel into finer particles? a) Cleaning system b) Conditioning system c) Break system d) Reduction system	K1	CO1
	4	Relate the purpose of fortifying wheat flour. a) To enhance taste b) To add color c) To increase nutritional value d) To prolong shelf life	K2	CO1
3	5	What is the traditional method used in dhal milling? a) Cold pressing b) Dry milling c) Wet milling d) Heat processing	K1	CO5
	6	Show the main objective of hydrogenation in oil processing. a) To reduce fat content b) To solidify the oil c) To remove impurities d) To enhance aroma	K2	CO3
4	7	Which of the following is a common type of algae used as a protein source? a) Chlorella b) Lentinula c) Agaricus d) Pleurotus	K1	CO3
	8	Relate the nutritional significance of fish protein concentrate. a) Low in vitamins b) High in protein c) High in carbohydrates d) Low in minerals	K2	CO2
5	9	What is the primary chemical constituent of cocoa beans? a) Caffeine b) Theobromine c) Citric acid d) Ascorbic acid	K1	CO2
	10	Show the function of high hydrostatic pressure (HHP) in food preservation. a) Adds flavor b) Destroys microorganisms c) Increases sweetness d) Reduces calorie content	K2	CO4

Cont...

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.	Relate the steps involved in processing of puffed rice.	K2	CO1
	(OR)			
	11.b.	Plan a cereal production process that incorporates both rice and millet.	K3	
2	12.a.	Identify and outline the break system in wheat milling, detailing its significance.	K3	CO2
	(OR)			
	12.b.	Examine the potential benefits and limitations of fortifying rice with essential nutrients.	K4	
3	13.a.	Show the process of solvent extraction in oil processing.	K2	CO3
	(OR)			
	13.b.	Analyze the differences between traditional and improved methods of pulse processing and their impact on nutritional value.	K4	
4	14.a.	Plan a cultivation strategy for edible mushrooms, covering essential steps from cultivation to processing.	K3	CO4
	(OR)			
	14.b.	Discover and categorize the primary protein sources obtained from algae and fish, emphasizing their nutritional relevance.	K4	
5	15.a.	Apply the principles of cocoa processing to design a flowchart for chocolate production.	K3	CO5
	(OR)			
	15.b.	Compare the wet and dry processing methods of coffee and discuss their effects on flavor and aroma.	K4	

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	Analyze the processing steps for manufacturing instant rice and assess how each step influences the final product's texture and nutritional content.	K4	CO1
2	17	Examine the steps in wheat milling, specifically the conditioning process, and evaluate its importance in producing high-quality flour.	K4	CO2
3	18	Discover the benefits and challenges of cold pressing in oil extraction, and compare it with other extraction methods in terms of quality and nutritional value.	K4	CO3
4	19	List the stages in processing fish protein concentrate and compare its production with that of algae-based protein sources.	K4	CO4
5	20	Survey the applications of pulsed electric fields (PEFs) and ultrasound (US) in the food industry and categorize their effects on different types of food products.	K4	CO5

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BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - NUTRITION, FOOD SERVICE MANAGEMENT AND DIETETICS

HUMAN PHYSIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Question No.	Question	K Level	CO
1	Choose the "powerhouse" of the cell? a) Nucleus b) Ribosome c) Mitochondria d) Golgi apparatus	K1	CO1
2	Which blood group is known as the universal donor? a) A+ b) AB+ c) O+ d) O-	K2	CO1
3	Find the following vessels that carries oxygenated blood away from the heart? a) Pulmonary artery b) Pulmonary vein c) Aorta d) Superior vena cava	K1	CO2
4	Name the part of that heart is responsible for pumping oxygenated blood to the rest of the body? a) Right ventricle b) Left ventricle c) Right atrium d) Left atrium	K2	CO2
5	Which part of the digestive system is primarily responsible for nutrient absorption? a) Stomach b) Small intestine c) Esophagus d) Large intestine	K1	CO3
6	Which structure in the kidney is responsible for filtering blood to form urine? a) Glomerulus b) Nephron c) Ureter d) Bladder	K2	CO3
7	Which part of the brain is responsible for coordinating voluntary movements and balance? a) Cerebrum b) Cerebellum c) Medulla Oblongata d) Hypothalamus	K1	CO4
8	Which structure in the ear is involved in maintaining balance and equilibrium? a) Cochle b) Eardrum c) Semicircular canal d) Auditory nerve	K2	CO4
9	Find the "master gland" of the endocrine system? a) Thyroid b) Pituitary c) Adrenal d) Parathyroid	K1	CO5
10	During ovulation the Graffian follicle releases a) Estrogen b) Progesterone c) Ovum d) Follicle-stimulating hormone	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Identify the role of muscle tissue in generating movement.	K3	CO1
	(OR)		
11.b.	Choose the significance of plasma proteins in blood.		
12.a.	Explain how the sinoatrial (SA) node initiates the heart's electrical conduction system.	K3	CO2
	(OR)		
12.b.	Describe the mechanism of breathing in terms of pressure changes in the thoracic cavity.		
13.a.	Analyze the coordination of peristaltic movement contribute to the efficient digestion of food.	K4	CO3
	(OR)		
13.b.	Examine the structure of the nephron enables the formation of urine.		
14.a.	Evaluate the significance of the hypothalamus in maintaining homeostasis within the body.	K5	CO4
	(OR)		
14.b.	Assess the significance of the cochlea in the process of hearing.		
15.a.	Analyse the hormones secreted by adrenal gland that are respond to stress.	K4	CO5
	(OR)		
15.b.	Examine the main stages of the menstrual cycle and their hormonal regulation.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	Analyze the relationship between the structural variations in different types of epithelial tissues and their specific functions.	K4	CO1
17	Examine the structure of the respiratory tract which supports the efficient exchange of gases.	K4	CO2
18	Evaluate the importance of the pancreas in the overall process of digestion.	K5	CO3
19	Criticize the effectiveness of the reflex arc in protecting the body from harm.	K5	CO4
20	Analyze the contribution of thyroid gland for regulating metabolism and the potential consequences of hypo- and hyperthyroidism.	K4	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - **NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS**

MATHEMATICS

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	Every square matrix satisfies its own characteristic equation is known as a) Euler b) Cayley Hamilton c) Fermat d) Lagrange	K1	CO1
	2	Matrix $A = \begin{bmatrix} 2 & -1 & 3 \\ -1 & 4 & 1 \\ 3 & 1 & 5 \end{bmatrix}$ is called as a) Symmetric b) identity c) diagonal d) singular	K2	CO1
2	3	$1 + \sqrt{5}$ is one of the rational root then another one is a) $1 - \sqrt{5}$ b) 1 c) $\sqrt{5}$ d) $\pm\sqrt{5}$	K1	CO2
	4	If α be root of a reciprocal equation then-----must also be a root. a) $\sqrt{\alpha}$ b) $-\alpha$ c) $\frac{1}{\alpha}$ d) $\pm\sqrt{\alpha}$	K2	CO2
3	5	In Gauss elimination method the system of equations transformed in to a) Lower triangular matrix b) Upper triangular matrix c) Unit Matrix d) Transposed Matrix	K1	CO3
	6	Which method is following is direct method a) Gauss Elimination method b) Regula falsi c) Newton Rapshon d) Gauss seidal method	K2	CO3
4	7	Which of the following symbol is called Newton forward operator? a) Δ b) ∇ c) E d) δ	K1	CO4
	8	In the Newton backward difference formula $v = ?$ a) $\frac{x-x_n}{h}$ b) $x - x_n$ c) $\frac{x-x_0}{h}$ d) $x - x_0$	K2	CO4
5	9	Simson's 1/3 rule used only when? a) sub interval is odd b) sub interval is even c) both a) and b) d) none	K1	CO5
	10	For Newton-cote's formula the space should be a) un equal b) Equi distant c) both a) and b) d) none	K2	CO5

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.	Find the sum and product of the eigen values $A = \begin{bmatrix} 1 & -4 & 4 \\ 1 & -2 & 4 \\ 1 & -1 & 3 \end{bmatrix}$	sK1	CO1
	(OR)			
	11.b.	Verify Cayley Hamilton theorem of the matrix $A = \begin{bmatrix} 1 & 1 & 3 \\ 5 & 2 & 6 \\ -2 & -1 & -3 \end{bmatrix}$	K4	CO1

Cont...

2	12.a.	Solve the equation $x^4 + 4x^3 + 5x^2 + 2x - 2 = 0$ which has the one root $-1 + \sqrt{-1}$	K1	CO2														
	(OR)																	
	12.b.	Increase the roots of the equation $4x^5 - 2x^3 + 7x - 3 = 0$ by -2.	K6	CO2														
3	13.a.	Using the Gauss-elimination, solve the following equations : $10x + y + z = 12$, $2x + 10y + z = 13$, $x + y + 5z = 7$	K1	CO3														
	(OR)																	
	13.b.	Using the Gauss-Jacobi method solve the following equations up to four iteration : $10x - 5y - 2z = 3$, $4x - 10y + 3z = -3$, $x + 6y + 10z = -3$	K5	CO3														
4	14.a.	From the Following data, Find θ at $x = 84$ <table><tr><td>X</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td></tr><tr><td>θ</td><td>184</td><td>204</td><td>226</td><td>250</td><td>276</td><td>304</td></tr></table>	X	40	50	60	70	80	90	θ	184	204	226	250	276	304	K3	CO4
	X	40	50	60	70	80	90											
	θ	184	204	226	250	276	304											
(OR)																		
14.b.	Using Lagrange's interpolation formula find the value $f(10)$ for the data <table><tr><td>X</td><td>5</td><td>6</td><td>9</td><td>11</td></tr><tr><td>Y</td><td>12</td><td>13</td><td>14</td><td>16</td></tr></table>	X	5	6	9	11	Y	12	13	14	16	K2	CO4					
X	5	6	9	11														
Y	12	13	14	16														
5	15.a.	Find the first and second derivatives of the of the function tabulated below at the point $x=1.5$ <table><tr><td>X</td><td>1.5</td><td>2.0</td><td>2.5</td><td>3.0</td><td>3.5</td><td>4.0</td></tr><tr><td>$f(x)$</td><td>3.375</td><td>7.0</td><td>13.625</td><td>24.0</td><td>38.875</td><td>59.0</td></tr></table>	X	1.5	2.0	2.5	3.0	3.5	4.0	$f(x)$	3.375	7.0	13.625	24.0	38.875	59.0	K1	CO5
	X	1.5	2.0	2.5	3.0	3.5	4.0											
	$f(x)$	3.375	7.0	13.625	24.0	38.875	59.0											
(OR)		K1	CO5															
15.b.	Using Simson's 3/8 rule, Evaluate $\int_0^{\pi/2} \sin x dx$,																	

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	Find the eigen value and eigen vectors of the matrix $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$	K2	CO1														
2	17	Solve the equation $27x^3 + 42x^2 - 28x - 8 = 0$ whose roots are in geometric progression.	K2	CO2														
3	18	Using the Gauss-Seidal method, solve the following equations: $27x + 6y - z = 85$, $x + y + 54z = 110$, $6x + 15y + 2z = 72$	K4	CO3														
4	19	The following table gives the population of a town during the last six cenceus. Estimate ,using Newton's interpolation formula the increase in the population during the period1946 to 1976 <table><tr><td>Year</td><td>1941</td><td>1951</td><td>1961</td><td>1971</td><td>1981</td><td>1991</td></tr><tr><td>Population(in thousands)</td><td>20</td><td>24</td><td>29</td><td>36</td><td>46</td><td>51</td></tr></table>	Year	1941	1951	1961	1971	1981	1991	Population(in thousands)	20	24	29	36	46	51	K6.	CO4
Year	1941	1951	1961	1971	1981	1991												
Population(in thousands)	20	24	29	36	46	51												
5	20	Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by (i) Trapezoidal rule (ii) Simpson's rule.	K5	CO5														

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch – NUTRITION, FOOD SERVICE MANAGEMENT & DIETETICS

FOOD MICROBIOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Oxidation reduction potential of microbes is expressed in
(i) ohm (ii) pascal
(iii) millivolts (iv) micro grams
- 2 Find the term to be Butyrics
(i) *Clostridium sp.* (ii) *Alternaria sp.*
(iii) *Pseudomonas sp.* (iv) *Leuconostoc sp.*
- 3 Choose the microbe that causes Gray mold rot.
(i) *Botrytis sp.* (ii) *Rhizopus sp.*
(iii) *Alternaria sp.* (iv) All the above.
- 4 Select the food borne disease caused by *Streptococcus pyogenes*
(i) Scarlet Fever (ii) Dysentery
(iii) Vomitting (iv) Dizziness
- 5 Identify the general method of waste Disposal.
(i) Dilution (ii) Irrigation
(iii) Lagooning (iv) All the above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Illustrate the structure and multiplication of Bacteriophage.
OR
b Distinguish between Prokaryotes and Eukaryotes.
- 7 a Explain the Physiological Characteristics of Mold.
OR
b Assess the process of hybridization of Yeast.
- 8 a Interpret the causes of spoilage of milk.
OR
b Speculate on chemical changes caused by microbes.
- 9 a Classify Food Borne infections.
OR
b Infer on Gastroenteritis.

Cont...

- 10 a Inspect the role of heat and radiation in microbial Control.

OR

- b Summarize on BOD.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Illustrate the economic importance of Bacteria in food microbiology.

OR

- b Explain the food as a substrate for growth of microbes.

- 12 a Evaluate on Economic Importance of Algae.

OR

- b Speculate on various genera of Mold which shows its significance in Food?

- 13 a Assess the Contamination and Spoilage of Fish.

OR

- b Interpret on Contamination and Spoilage of Fruits and vegetables.

- 14 a Analyze the causes, signs, symptoms and prevention of *Trichinosis*.

OR

- b Elucidate on Food Poisoning by *Aspergillus sp.* and *Penicillium sp.*

- 15 a Infer on Bacteriological examination of water for *E.Coli*.

OR

- b Examine on Chemical agents involved in controlling microbial growth.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch- NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS

FOOD PRESERVATION

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 What type of bacteria is primarily responsible for fermenting sauerkraut?
(i) Lactobacillus (ii) Streptococcus
(iii) Bacillus (iv) Escherichia
- 2 Choose the method by which moisture is removed in freeze drying
(i) Evaporation (ii) Drying
(iii) Sublimation (iv) Heating
- 3 Identify the method commonly used to dehydrate whole milk
(i) Freeze-drying (ii) Air drying
(iii) Spray drying (iv) Oven drying
- 4 Which type of radiation is commonly used in food irradiation?
(i) Alpha particles (ii) Beta particles
(iii) Gamma rays (iv) X-rays
- 5 What is the main benefit of probiotics found in yogurt?
(i) increase shelf life (ii) improve gut health
(iii) enhance sweetness (iv) change the texture

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Describe the steps involved in preparation of jam.
OR
b Outline the process involved in tomato sauce preparation.
- 7 a Narrate on the principle and working of air blast freezer.
OR
b Discuss on the defects in frozen foods.
- 8 a Examine the dehydration process of egg.
OR
b Describe working of a cabinet dryer.

Cont...

- 9 a Elucidate the preservatives used in food preservation and their permissible limit.
OR
b Outline merits and demerits of irradiation.
- 10 a Explain briefly about cheese manufacturing process
OR
b Describe the process in production of yoghurt.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Elucidate the steps involved in canning process.
OR
b Point out the advantages of pickling process and discuss the preparation of mango pickle.
- 12 a Evaluate the process of freezing as a preservation method for meat and fish.
OR
b Compare and contrast Controlled Atmosphere and Modified Atmosphere Storage.
- 13 a Describe the operation of spray drier with a neat diagram.
OR
b Highlight the merits of drum drier and discuss its working process with neat sketch.
- 14 a Explain High pressure processing and its limitations.
OR
b Determine the principle and operation of Pulsed Electric Field preservation.
- 15 a Discuss the process for production of wine.
OR
b Highlight the process involved in manufacture of any two non-carbonated beverages.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATIONS DECEMBER 2024
(Fifth semester)

Branch – NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS

INSTITUTIONAL FOOD MANAGEMENT

Time: Three hours

Maximum: 50 marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Choose the following that is not a type of travel catering
 - (i) Airline catering
 - (ii) Event catering
 - (iii) Cruise catering
 - (iv) Vending catering
2. Identify the food service system that prepares food in a central kitchen and serves it at a remote site
 - (i) Conventional
 - (ii) Commissary
 - (iii) Ready-prepared
 - (iv) Assembly/serve
3. What type of menu offers different dishes daily based on available ingredients?
 - (i) Banquet
 - (ii) A la carte
 - (iii) Cycle menu
 - (iv) Static menu
4. Point out the type of vending machine that is commonly used in hospitals for dispensing food items
 - (i) Cafeteria vending
 - (ii) Beverage vending
 - (iii) Coin-operated vending
 - (iv) Silver service vending
5. Mention the system that is most important for the safety and security of food storage areas
 - (i) Fire alarm
 - (ii) CCTV surveillance
 - (iii) Personnel safety training
 - (iv) Alarm systems

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6.a) Analyze the role of contract catering in institutional food management.
OR
b) Explain the key challenges in the growing food service industry.
- 7.a) Illustrate the benefits of a ready-prepared food service system.
OR
b) Classify food service equipment and write the factors affecting selection of equipment.
- 8.a) Summarize the functions and types of menu.
OR
b) Narrate the Quantity food production.
- 9.a) Differentiate between cafeteria vending and silver service vending.
OR
b) Explain the guidelines for food production and service employee .

Cont...

10.a) Write on the importance of storage safety in food service establishments.

OR

b) Explain the role of surveillance in ensuring food service hygiene.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11.a) Analyze the significance of food service operations in Public sector.

OR

b) Explain how contract catering enhances food service management.

12.a) Examine the advantages and disadvantages of assembly-serve food systems.

OR

b) Explain methods of purchase, care and maintenance of food service equipment.

13.a) A well-planned menu can influence food service efficiency and customer satisfaction – Justify it.

OR

b) Explain product evaluation, standardisation of recipes, portion controls and utilization of leftovers.

14.a) Explain the operational challenges in managing vending services for institutional catering.

OR

b) Compare and contrast the benefits and limitations of centralized service and vending service in hospitals.

15.a) Examine the importance of implementing surveillance systems in food safety management.

OR

b) Summarize the role of security systems in food service management and safety devices.

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch –**NUTRITION, FOOD SERVICE MANGEMNET & DIETETICS**

MAJOR ELECTIVE COURSE – I :
FOOD PRODUCT DEVELOPMENT & PACKAGING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(5 x 1 = 5)

1. Choose the first stage in the product development process.
 a) Product commercialization b) Sensory evaluation
 c) Product idea stage d) Product optimization
2. What does HACCP stand for in the context of food product development ?
 a) Hazard Analysis and Critical Control Points
 b) Health Assurance and Control Points
 c) Hazard Avoidance and Chemical Precautions
 d) Hygiene and Assessment Control Program
3. Write the correct abbreviation for IPR
 a) International Product Registration b)Intellectual Product Regulation
 c) Intellectual Property Rights d) International Packaging Rules
4. Which packaging material is the most suitable for heat-sensitive food products?
 a) Plastic wrap b) Aluminium foil
 c) Glass containers d) Wooden boxes
5. Glass containers are widely used for packaging due to their
 a) High flexibility b) Excellent barrier properties
 c) Low weight d) Easy biodegradability

SECTION - B (15 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks

(5 x 3 = 15)

6. a) Summarize the factors affecting new food product development.
 OR
 b) Demonstrate the your understanding of the stages of product development.
7. a) Demonstrate importance of Nutritional Labelling.
 OR
 b) Bring out the principles of product development management.
8. a) Construct the impact of different marketing strategies in product commercialization.
 OR
 b) Show how product marketability is influenced by specific factors.

Cont...

9. a) Explain the primary functions of packaging.
OR
b) Use examples to point out the properties and uses of flexible packaging materials.
- 10.a) Examine modified atmospheric packaging and its applications.
OR
b) Illustrate the role of RFID technology in enhancing food packaging.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks

(5 x 6 = 30)

11. a) Discuss the significance of innovative food products and their role in market growth.
OR
b) Summarize the stages of the product development life cycle and explain the importance of each stage.
12. a) Judge the effectiveness of various factors influencing product optimization.
OR
b) Predict the critical steps involved in managing a product development process effectively.
13. a) Examine the importance of sensory evaluation in food product development.
OR
b) Show a marketing strategy that aligns with product commercialization goals.
- 14.a) Apply your knowledge to explain different types of packaging materials and their applications in food packaging.
OR
b) Compare and contrast different packaging materials in terms of durability and suitability for food products.
15. a) Conclude and propose solutions for food industry compliance with environmental packaging laws.
OR
b) Explain Rigid Packaging Materials.

Z-Z-Z

END