PSG COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)

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MSc DEGREE EXAMINATION MAY 2025

(Second Semester)

Branch - FOODS AND NUTRITION

PHYSIOLOGICAL ASPECTS OF NUTRITION

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

 $(10 \times 1 = 10)$

| ALL questions carry EQUAL marks (10 x 1 - 10) | | | | | | | |
|---|-----------------|--|------------|-----|--|--|--|
| Module No. | Question No. | Question | K Level | со | | | |
| 110. | 1 | Which of the following is the primary enzyme involved in protein digestion in the stomach? a) Amylase b) Lipase c) Pepsin d) Trypsin | K1 | CO1 | | | |
| 1 | 2 | What is the primary role of free radicals in biological systems? a) Energy production b) Breaking down proteins c) Causing oxidative damage to cells d) Supporting digestion | K2 | CO1 | | | |
| 2 | 3 | Which of the following chemical constituents is most associated with the sensation of umami taste? a) Glucose b) Sodium chloride c) Glutamate d) Sucrose | K1 | CO2 | | | |
| | 4 | What is the mechanism responsible for focusing light onto the retina called? a) Refraction b) Accommodation c) Convergence d) Binocular vision | K2 | CO2 | | | |
| 3 | 5 | Which hormone is secreted by the anterior lobe of the pituitary gland? a) Oxytocin b) Prolactin c) Cortisol d) Insulin | K1 | CO3 | | | |
| | 6 | A disorder caused by an overproduction of growth hormone after puberty is a) Dwarfism b) Acromegaly c) Cretinism d) Diabetes insipidus | K2 | CO3 | | | |
| 4 | 7 | What is the part of the immune system that responds to antigens called? a)Pathogen b) Antibody c) Immune response d) Inflammation | K1 | CO4 | | | |
| | 8 | Which of the following immunoglobulins is most abundant in the human body? a) IgM b) IgA c) IgG d) IgE | K2 | CO4 | | | |
| 5 | 9 | What is the process of drug absorption? a) Breakdown of drugs b) Movement of drug into the bloodstream c) Elimination of drugs d) Storage of drugs in the liver from the body | K1 | CO5 | | | |
| | 10 | Hypolipidemic agents may cause which nutritional deficiency? a) Vitamin A deficiency b) Iron deficiency c) Fat-soluble vitamin deficiency d) Calcium deficiency | K2 | CO5 | | | |

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

 $(5 \times 7 = 35)$

| Module | Question (3 x 7 = 33) | | | | | |
|--------|-----------------------|--|------------|-----|--|--|
| No. | No. | Question | K Level | co | | |
| | 11.a. | Analyze the role of pepsinogen in protein digestion and explain why it is secreted in an inactive form. | | | | |
| 1 | (OR) | | | CO1 | | |
| | 11.b. | List the role of antioxidants in preventing oxidative stress and their implications for human health. | K4 | | | |
| | 12.a. | Evaluate the significance of the histological structure of taste papillae in the function of taste perception. | | | | |
| 2 | (OR) | | | CO2 | | |
| | 12.b. | Evaluate the importance of auditory pathways in sound localization and how their impairment affects hearing. | K5 | | | |
| | 13.a. | Assume the role of the anterior pituitary in regulating other endocrine glands. | _ | | | |
| 3 | (OR) | | | CO3 | | |
| | 13.b. | Analyze the adrenal medulla's contribution to the body's stress response and its related disorders. | | | | |
| | 14.a. | Evaluate the role of IgE in allergic reactions and how its overproduction leads to hypersensitivity disorders. | | CO4 | | |
| 4 | | (OR) | K.5 | | | |
| | 14.b. | Explain how does chronic stress impact immune function, and what mechanisms are involved in stress-induced immune suppression. | C.A. | | | |
| | 15.a. | Discuss bio transformation of drugs. | | | | |
| 5 | (OR) | | | CO5 | | |
| | 15.b. | Elaborate the mechanisms by which oral hypoglycemic drugs can contribute to nutrient deficiencies and malnutrition. | K6 | | | |

SECTION -C (30 Marks) Answer ANY THREE questions

ALL questions carry EQUAL Marks $(3 \times 10 = 30)$

| Module No. | Question No. | Question | K Level | СО |
|---------------|-----------------|--|------------|-----|
| 1 | 16 | Analyze the roles of gastrin and cholecystokinin in regulating digestive processes. | K4 | CO1 |
| 2 | 17 | Elaborate the relationship between photochemical changes in rods and cones in the human visual system. | К6 | CO2 |
| 3 | 18 | Evaluate the hormonal regulation of calcium homeostasis by the thyroid and parathyroid glands including their modes of action. | K.5 | CO3 |
| 4 | 19 | List the role of trace elements such as zinc and selenium in the regulation of immune responses. | K4 | CO4 |
| 5 | 20 | Justify how drug absorption can be influenced by the presence of food in the gastrointestinal tract. | K5 | CO5 |