

FIFTH SEMESTER DEGREE PROGRAMME ZOOLOGY OPEN COURSE I (Theory) NUTRITION, HEALTH AND HYGIENE

Code: ZOL5D02T [54 hours][3 hours per week][3 credits]

Course Outcomes

➤ **CO1 Describe the basic concepts in nutrition (3 hrs)**

CO2 Demonstrate the understanding of nutrients and energetics (20 hrs)

CO3 Enumerate the vitamins and minerals and their roles in human nutrition (4 hrs)

CO4 Explain balanced diet, RDA and factors affect it and meal planning for various categories of people (4 hrs)

CO5 Illustrate diet therapy and dietary management of various conditions (3 hrs)

CO6 Explain health, fitness and hygiene (4 hrs)

CO7 Describe the major communicable, non-communicable, congenital and sexually transmitted human diseases (12 hrs)

CO8 Perform first aid management in emergency situations (4 hrs)

Question paper pattern for external examination

- **(Module 1-5:** Short answer 7x2=14 marks, Paragraph 5x5=25 marks; Essay 1x10=10marks)
- **(Module 6-8:** Short answer 5x2=10 marks, Paragraph 2x5=10 marks, Essay 1x10=10 marks)

Section A: NUTRITION (34 hours)

Module 1: Key concepts in Nutrition (3 hrs)

Basic Nutrition Concepts: Nutrition, Food energy - Kilocalories, Nutrients, Nutrient Density. Nutritional needs of body, classification of foods. Factors Influencing Food Selection: Flavor, Demographics, Culture and Religion, Social and Emotional Influences, Health, Environmental Concerns, Food industry and media (short notes only) B.Sc. Zoology 2020 admission onwards 96
Nutrients and non-nutrients: Six classes of nutrients: Carbohydrates, Fats, Protein, Vitamins, Minerals, Water; functions of these nutrients. Mention essential nutrients. [Short answer/paragraph questions]

Module 2: Nutrition and Energetics (19 hrs)

Digestion, absorption and metabolism (14 hrs)

Classification, Sources and nutritional significance of carbohydrates, protein and fats. Gastrointestinal tract, digestion and absorption of carbohydrate, protein and fats. Carbohydrate metabolism. Mention dietary fibers, essential and non essential amino acids, saturated, unsaturated and essential fatty acids. Deficiency of Protein — Protein energy malnutrition (PEM), Kwashiorkor, Marasmus. [Short answer/paragraph/essay questions]

Energy Metabolism (5 hrs)

Energy value of macronutrients, factors affecting the caloric value of foods, PFV (Physiological Fuel Value) of foods, low calorie modifications, Bomb calorimeter, Basal metabolic rate (BMR), factors affecting BMR; Thermic effect of food and thermogenesis. Energy balance and Body mass index (BMI). [Short answer/paragraph/essay questions]

Module 3: Vitamins and Minerals (5 hrs)

Vitamins (4 hrs) Fat soluble — A, D, E, K.; Water soluble vitamins — B Complex — Thiamine, Riboflavin, Niacin, Pantothenic Acid, Folic Acid, Vitamin B 12, Biotin and Pyridoxine, Vitamin C. Sources and effects of deficiency. Macro and Micro

Minerals (1 hrs) Physiological functions, sources and deficiency: Calcium, Phosphorous, Iron and Iodine. [Short answer/paragraph Essay questions]

Module 4: Meal Planning (4 hrs)

Characteristics of a nutritious Diet: Adequate, Balanced, Moderate and Varied diet. Nutrient requirement and meal planning for adults; changes in nutrient requirement according to sex, age & activity. RDA (recommended dietary allowance), Factors affecting RDA. Special nutritional requirements and conditions: Pregnancy, lactation and weaning. [Short answer/paragraph questions]

Module 5: Clinical Dietetics (3 hrs) Therapeutic modification of normal diet. Etiology, symptoms and dietary management in peptic ulcer, diarrhea, obesity, hypertension, diabetes mellitus, nephritis, cirrhosis of liver and lactose intolerance. [Short answer/paragraph questions]

Section-B: HEALTH AND HYGIENE (20 hours)

MODULE 6: HEALTH AND HYGIENE (5 hrs)

Relationship between Food, Nutrition & Health. Physical, psychological and sociological health. Body fitness: Principles of exercise programming, Exercise, Yoga, cycling & walking. Hygiene: Personal hygiene, Oral Hygiene and Sexual Hygiene.: Smoking habits, Active and passive smoking, composition and effects of tobacco smoke. Alcohol Use: Alcoholism, Physiological effects of alcohol and abuse of alcohol. [Short answer/paragraph questions]

MODULE 7: HUMAN DISEASES (11 hrs)

Communicable diseases: Bacterial (Cholera and Typhoid), Viral (Measles and Poliomyelitis), Fungal (Candidiasis), Protozoan (Amoebiasis and Malaria), Helminth (Ascariasis and Taeniasis). Non-Communicable diseases: Blood pressure (Hypertension and Hypotension); Cerebral haemorrhage and stroke; Coronary thrombosis, Atherosclerosis and Arteriosclerosis; Diabetes: Type I and Type II; Cancer: Thyroid cancer and Breast cancer; Congenital diseases: Autism, Dyslexia, Downs and Foetal alcoholic Syndrome; Sexually transmitted diseases (STD): Syphilis and Gonorrhoea Vectors and diseases: Anopheles, Aedes, Culex and Xenopsylla [Short answer/paragraph/essay questions]

MODULE 8: FIRST AID MANAGEMENT IN EMERGENCY SITUATION: (4 hrs)

Dog bite; Insect sting: scorpion, Bee and wasp; Snake bite: Poisonous and Non poisonous snakes; Haemotoxic Venom and Neurotoxic Venom; Antivenom and Polyvalent snake antivenom; First aid for Road accidents and drowning; Risks of self-medication practices [Short answer/paragraph questions]

Topics for Assignments and Seminars (Topics allotted for assignments/ seminars should be considered for internal assessments only, and can be subdivided among students)

1. Non-nutritive components of food: food additives and preservatives.
2. Tobacco abuse. 3. Drugs and narcotics abuse.
4. Hepatitis and sub types A, B & C.
5. Nutrition in outer space.
6. Integrated Child Development Services (ICDS).
7. Mid-Day Meal Scheme (MDMS).
8. Special Nutrition Programme.
9. Balwadi Nutrition Programme.
10. National Nutrition Policy of 1993

REFERENCES

- ❖ Martin Eastwood (2003): Principles of Human Nutrition, Second edition. ISBN: 978-0-632- 05811- 2. Blackwell Science Ltd, 680 pages.
- ❖ Brian Walker, Nicki R Colledge, Stuart Ralston and Ian Penman (2014) Davidson's Principles of Practice of Medicine. 22nd Edition; eBook ISBN: 9780702057199, Elsevier, 1392 pages
- ❖ Harvey Washington Wiley: Wiley's Health Series, Vol. 1: Nutrition Hygiene Physiology; Wiley
- ❖ John Hall (2015) Guyton and Hall Textbook of Medical Physiology; 13th Edition, Hardcover ISBN: 9781455770052, Paperback ISBN: 9781455770168, Elsevier, 1168 pages
- ❖ H.D. Singh, Sarada Subramanyam, and K. Madhavankutty (2014) Textbook of Human Physiology; ISBN 10: 8121902169, S. Chand & Co.
- ❖ Michael J. Gibney (2012) Public Health Nutrition, ISBN: 978-1-444-34204-8, Blackwell, 392 pages • Michael J. Gibney (2005) Clinical Nutrition, ISBN 10 0632056266, Blackwell, 496 page