

DEPARTMENT OF NUTRITION AND DIETETICS

Syllabus for Pre-Registration Qualifying Entrance Examination for Ph.D. Programme

PART B – Nutrition and Dietetics

Unit I: Principles of Nutrition and Nutritional Biochemistry: Macro and Micro Nutrients - Sources, Classification, Functions, Requirements, Digestion, Absorption and Utilization. Carbohydrate metabolism, Protein metabolism, Lipid metabolism, micronutrient metabolism, Drug nutrient interactions, Enzymes and hormones.

Unit II: Medical Nutrition Therapy/Clinical Nutrition/Dietetics/Nutrition in Health and Disease:

Principles of diet therapy, Modifications of diets in febrile conditions, Oral and dental conditions, Gastrointestinal and hepato-biliary disorders, Disorders of energy metabolism- obesity, underweight, non-communicable diseases such as cardiovascular disorders, diabetes mellitus, hypertension and renal diseases, pulmonary disorders, Nutrition in critical care, cancer and allergies and food intolerances.

Unit III: Nutritional Epidemiology and Public Health Nutrition: Nutrition research methods- observational, case-control, cohort, randomized control trials, Nutrition surveys and surveillance in India, Nutritional assessments anthropometry, biochemical, clinical and dietary surveys, Monitoring and evaluation of nutrition programmes, and nutrition education.

Nutrition security, Nutritional status, Malnutrition, under- and over nutrition, trends in nutritional status in India, Strategies to overcome nutritional challenges- undernutrition, anaemia, obesity, non-communicable diseases, Nutrition intervention programmes in India, Sustainable development goals, World Health Assembly targets, Trends in breast feeding practices in India, Role of national and international agencies to combat malnutrition, Nutrition education.

Unit IV: Nutrition through Lifecycle and Human Physiology: Balanced diet, Meal planning, Nutrition during pregnancy, lactation, infancy, toddlerhood, preschool stage, school going children, and adolescence. Growth and development during different stages of lifecycle, nutrition for adults, older adults and old populations, ICMR-NIN RDA (Recommended Dietary Allowance) and EAR (Estimated Average Requirements).

Human body systems – Cardiovascular system, Digestive system, Urinary system, Blood, Lymphatic system, Respiratory system, Musculoskeletal system, Endocrine and Reproductive system.

Unit V: Food Science and Technology/ Food Safety/ Food Service Management

Food groups, Food preparation methods, Food preservation techniques, Food analysis – proximate composition, Sensory analysis and Food processing techniques, Food additives, Food fortification and Food packaging, FSSAI Regulations.

Food safety, Food security, and Food hygiene. Food borne illnesses, hazard analysis and critical control points and good manufacturing practices, Role of microorganisms in food processing,

Food Service Management Meal planning, Portion sizing, Food service institutions, Types of food service, Food service equipment, lay outs, designs, Principles of meal service and planning, Catering service management and Institutional food service.

Suggested Readings:

- Bamji M.S, (2017), *Textbook of Human Nutrition*, 4th Edition, Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.
- Buttriss, J.L., Ailsa, A., Welch, Kearney, J.M and Susan, A. 2017. *Public Health Nutrition*, 2nd Edition, Wiley-Blackwell.
- Carolyn D Berdanier, 2021. *Advanced Nutrition, Macronutrients, Micronutrients and Metabolism*, IIIrd Edition, CRC Press Publishers.
- Food Safety and Standards Act. 2006. (2025) Commercial Law Publishers.
- H.S. Ravikumar Patil, H.K. Makari, H. Gurumurthy and S.V. Sowmya (2024). *Textbook of Human Physiology*, Wiley, Publisher
- Kuddus, M., Asharf, SA. and Rahman, P. (2024). *Food Safety Quality Control and Management*, CRC Press.
- Malik, D., Narayanasamy, N., Pratyusha, VA., Thakur, J and Sinha, N. (2023). *Textbook of Nutritional Biochemistry*, Springer.
- Nutrient requirements and Recommended Dietary Allowances for Indians (2024). ICMR, National Institute of Nutrition, Hyderabad,
- R. Manjula, K. Nagaraj, M. Isai, K. Raja, V. Renuka and Flora Shah. (2023). *Food Quality Control*. Indian Press Publishers.
- Reddy SM, *Basic Food Science and Technology*, New Age Publishers, New Delhi, 2015
- Salvi, F. (2023), *Nutrition and Health*, First Ed, Discovery Publishing House.
- Sri Lakshmi, B. (2023). *Dietetics*, New Age International Pvt Ltd, New Delhi.
- Sri Lakshmi. (2018), *Food Science*, Seventh Edition, New Age International Publishers, New Delhi.
- Yasmine Motarjemi and Huub Lelieveld. (2014). "Food Safety Management - A Practical Guide for the Food Industry," Elsevier, New York.