

## DEPARTMENT OF HOME SCIENCE

### Ph.D. ENTRANCE EXAMINATION SYLLABUS, 2018-19

#### FOODS AND HUMAN NUTRITION

- Section A*
1. Nutritional Biochemistry
    - i. Carbohydrates, proteins, lipids – structure, biochemical role, digestion, absorption and metabolism.
    - ii. Minerals (Ca, P, Fe, I, Fl) and vitamins (A,D,E,K, B Complex and Vitamin C) – biochemical role.
    - iii. Hormones, nucleic acids and enzymes – mode of action, biochemical role.
  2. Food Science
    - i. Protein, Carbohydrates, Lipids, Minerals, Water, enzymes pigments, flavours- physical and chemical properties.
    - ii. Freezing, thermal processing, dehydration, irradiation and environmental control- chemical, physical and nutritional alterations occurring in food products
    - iii. Quality evaluation of food – sensory, bacteriological and nutritional. Food spoilage, Food adulteration.
  3. Food Microbiology
    - i. Microorganism important in foods-bacteria, mold and yeasts and factors affecting the growth of microorganisms.
    - ii. Food safety: HACCP, laws and regulations.
    - iii. Food hazards
      - Food born infections
      - Food intoxications
- Section B*
4. Human Nutritional Requirements
    - i. Recommended Dietary Allowances for the entire life span, methods of estimating requirements of the following – energy, proteins and amino acids, vitamins and minerals (Iron, Zinc, Potassium, Iodine, Calcium, Sodium).
    - ii. Evaluation of protein quality – analytical, biological, clinical and biochemical methods.
    - iii. Nutritional requirements for special conditions – natural calamities and emergencies, and extreme environmental temperatures.
  5. Problems in human nutrition
    - i. EnergyProteinMalnutrition, Vitamin A deficiency, iron deficiency anaemia, iodine deficiency disorders, osteoporosis, fluorosis- prevalence, etiology, biochemical and clinical manifestations and preventive measures, diagnostic techniques.
    - ii. Inborn errors of metabolism- amino acids and carbohydrates
    - iii. Lathyrism, epidemic dropsy, aflatoxicosis, entero ergotism and chemical contamination of foods: heavy metal and pesticide residue.
  6. Advanced and Therapeutic Nutrition
    - i. Nutrition during the life cycle

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- ii. Patient care, modification of normal diet for therapeutic purposes and special feeding methods.
- iii. Etiology, clinical manifestation and dietary management : surgery and burns, gastro intestinal problems, liver and gall bladder, cardiovascular diseases, febrile conditions, diabetes mellitus, obesity, underweight, allergy, cancer, anorexia and nervosa bulimia

C 7. Community Nutrition

- i. Concept of community health, community nutrition, ecology of health, national health delivery system, national health policy and national nutrition policy, nutrition education.
  - ii. Food security – agricultural production, storage and distribution, role of science and technology in increasing production, government measures to ensure food security in the community.
  - iii. National programs to overcome nutritional problems.
8. Institutional food administration
- i. Management and organisation
  - ii. Management – financial, energy and time, food, manpower, plant and equipment
  - iii. Quantity food production, food service and delivery systems.
9. Research methodology and statistics
- i. Types of research and research designs; sampling techniques; tools for data collection, classification and tabulation of data, graphic and diagrammatic presentation of data.
  - ii. Statistical techniques for analysis of data- measures of central tendency and dispersion, correlation, regression, parametric and non-parametric tests.
  - iii. Report writing- presentation of data, interpretation and discussion.

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