

**Syllabus for Entrance Examination**

**PART-1**

**UNIT 1**

Research Techniques in Food Science and Nutrition 1. Analytical techniques for determination of food composition. 2. Techniques in sensory analysis. 3. Product development and consumer behavior. 4. Food behavior surveys.

**UNIT 2**

Nutrition during life span -

a. Pregnancy – Physiological adjustments, nutritional requirements, nutritional status of Indian Pregnant women, effect of malnutrition on outcome of pregnancy, complications of pregnancy.

b. Lactation – Physiology of lactation, factors affecting lactation, nutritional requirements, effect of lactation on maternal malnutrition and fertility.

c. Infancy – Growth and development, nutritional requirements, feeding pattern, compositional differences between human milk and milk substitute and their suitability for infant feeding. Weaning practices, weaning and supplementary foods.

d. Preschool age - Growth and development, nutritional requirements, special care in feeding preschoolers, nutritional problems specific to this age.

e. School age and adolescent children – Growth and development, nutritional requirements, factors affecting their eating habits, nutritional problems specific to this age.

f. Young adults – Nutritional requirements, nutritional status of Indian adult population, nutritional problems common to this age.

g. Elderly – Nutritional requirements, special needs, nutritional problems.

**UNIT 3**

a. Public Health Nutrition: Aims and scope, primary prevention, nutritional epidemiology, public health and health promotion. b. Nutrition related non-communicable diseases (Indian Perspective) – Demographic, developmental and nutrition transition and its impact on chronic diseases, prevalence and determinants, nutritional management and prevention strategies.

**UNIT 4**

a. Statistical Methods I: Probability and Inference - Advanced theory, derivations of quantitative statistics. Descriptive statistics, probability, normal distribution. One-/two-sample hypothesis tests, confidence intervals. Chi square tests. One-way analysis of variance, follow up tests.

b. Statistical Methods II: Regression and the General Linear Model - Analysis of variance designs (two-/three-way), repeated measures, correlation, simple/multiple regression methods, non-parametric procedures, multivariate analyses. c. Computer Application in Analysis of Data

## **UNIT 5**

Processing of foods: Wheat, rice, millets, legumes, fruits and vegetables, fats and oils, sugar and confectionaries, beverages, milk and milk products, eggs, meat and fish.

## **PART-2**

### **UNIT 6**

a. Sampling Design: Steps in sample design; criteria of selecting a sampling procedure; Characteristics of a good sampling design; Types of sample designs [Non-probability sampling and Probability sampling]; Complex Random Sampling Designs [Systematic sampling, Stratified sampling, Cluster sampling, Area sampling, Multi-stage sampling, Sequential sampling]. b. Measurement and Scaling Techniques: Measurement in research, measuring scales, sources of error in measurement, test of sound measurement- validity, reliability, practicality; meaning of scaling, scale classification bases, important scaling techniques - rating scales, scale construction techniques-arbitrary scales, differential scales, likerttype scales, cumulative scales, factor scales, multi dimensional scaling.

### **UNIT 7**

Nutrition research - Data collection- Principles, definition and examples in nutrition research for the following. A. Quantitative tools i. Direct parameters – Application of anthropometry, dietary survey, clinical, biochemical and growth monitoring tests, body composition tests and physical fitness tests. ii. Indirect parameters –vital statistics, population tests, socio –economic indices, KAP surveys. B. Qualitative research tools- Types of interviews, Focus group discussions, Free listing and pile sorting, Narrative, Case studies, Participatory methods. C. Integrating qualitative and quantitative methods. D. Nutrition Intervention: Tools & techniques to facilitate nutrition intervention. Biomarkers and their use in nutrition intervention

### **UNIT 8**

a. Research Methodology: Meaning and Objectives of research; Types of research [Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical, Field setting vs. laboratory, clinical vs. diagnostic, Exploratory vs. Formalized]; Research Approaches [Qualitative approach and Quantitative approach] Significance of research; Basic concepts about research and scientific method; Research process. b. Defining the Research problem: Meaning of research problem; Selecting the research problem; Techniques involved in Defining problem. c. Research Designs: Meaning, need, features of a good design, concepts relating to research design, Different research designs – Exploratory research studies, descriptive and diagnostic research studies, Longitudinal, cross-sectional and sequential studies; Hypothesis-testing research studies; Basic principles of Experimental designs; Important experimental designs; Evaluation and Interventional designs.