

Syllabus for entrance exam of M Phil and Ph.D in Food Science & Technology

PART - A

Unit I

Components of Research Problem, Various Steps in Scientific Research, Types of Research- Basic and Applied research. Hypotheses, Research Design- Survey Research, Case Study Research, semi experimental and Experimental research. Data Collection, Sources of Data, Primary Data, Secondary Data. Questionnaire. Sampling methods. Sampling Errors

Unit II

Measures of Central tendency and distribution – mean, median, mode, range, standard deviation, variance. Basic principles of probability theory, Normal distribution, statistical inference – Types of errors and levels of significance. Comparison of variance (F-test), small sample test, t-test for comparison of means, Chi square test. Correlation and Linear regression.

Unit III

Processing and preservation by heat: Blanching, pasteurization, sterilization and UHT processing, canning, extrusion cooking, dielectric heating, microwave heating, baking, roasting and frying. Drying of milk, fruit juices and liquid foods. Phase change operations - Freezing and thawing. Mechanical refrigeration and refrigerants.

Unit IV

Processing and preservation by non-thermal methods: High pressure, pulsed electric field, hurdle technology, membrane filtration, pulsed electric, irradiation and other non-thermal technologies. food fermentations, pickling smoking Food additives; permissible limits and safety aspects. Milling technology, turbo milling, conventional wet and dry milling –flouring, Baking technology, Food processing equipments

PART B

UNIT I

Physical and chemical properties of foods, Nutritive value of foods, RDA Meal planning. Dietary fiber, Vitamins and minerals. Food adulteration, BMI, BMR, Sources, functions, digestion and absorption of proximate foods, PUFA, MUFA

UNIT II

Food spoilage: perishable and non perishable foods, canned foods, Fermented foods, Probiotics and prebiotics. Post harvest processing and preservation of plant foods. spices and condiments, beverages, confectionery. Egg processing, Meat, poultry, Marine foods: composition, processing and preservation methods.

UNIT III

packaging and labeling: Methods, Flexible and rigid packaging materials and properties, traditional packaging, Active, smart and intelligent packaging. Nutrition labeling, nutrition and health claims. PFA, AGMARK, FPO, MPO, BIS, ISI, FSSAI, GMP, GHP, GAP, HACCP, CODEX Alimentarius, Risk assessment.

UNIT IV

Nutrient deficiency disorders, Principles of diet therapy, diet diabetes, obesity, hypertension, cancer. Functional foods, nutraceuticals, Antioxidant rich foods. Food Product development: marketing and commercialization, plant layout. Scope and principle behind entrepreneurship development, entrepreneurial qualities.

Department of Microbiology & FST

Model Question Paper for Ph.D. Entrance Examination for Food Science & Technology

Note: 1. Answer all questions
2. All questions carry equal marks.

1. Vitamin C is rich in: ()
a) Guava b) Papaya c) Watermelon d) Grapes
2. Fat content of skimmed milk is: ()
a) 3.5 b) 2.5 c) 1.5 d) 0.5
3. Microorganism present in canned foods is: ()
a) *Lactobacillus cremori* b) *Salmonella typhi*
c) *Aspergillus niger* d) *Clostridium botulinum*
4. Crystallization of sugars can be prevented by addition of: ()
a) Sucrose b) Fructose c) Lactose d) Mannose
5. Thickening agent is:
a) Protein b) Starch c) Vitamins d) Minerals