Syllabus of M.Sc Home Science Entrance Examination

Unit I: FUNDAMENTALS OF NUTRITION AND FOOD SCIENCE ¬ Basic Concepts in Food and Nutrition, Concept of Nutrients, Nutrition and RDA. Functions of food , Classification of Nutrients. Functions, Dietary sources of Macro and Micro nutrients. Clinical Manifestations of Deficiency / Excess of Macro and Micro Nutrients. Concept of Food groups, Food Pyramid and Food exchange list. Food Groups their Selection and Nutritional Contribution , Changes during cooking of Food Groups.Methods of cooking. Advantages, disadvantages and the effect of various Methods of cooking on Nutrients. Minimizing Nutrient loss. Concept of Balanced diet.Factors affecting meal planning and Healthy food choices, Nutritional guidelines and Nutritional concerns of Infants, Preschool children, School-going children and Adolescence. Physiological changes, RDA, Healthy food choices, Nutritional guidelines, Nutritional concerns of Adults, Pregnant women, Lactating mothers and Elderly. Clinical nutrition and Dietetics- Significance, Diet Therapy objectives. Role of nutritionist ,Types of therapeutic diets. Concept of Public Health and nutrition, Nutritional Problems in India. Strategies to tackle nutritional problems. Catering and food services management - Types of food service system ,Management in food Services.

Unit –II: HUMAN DEVELOPMENT: ¬ Understanding Human development:Scope and Importance of human development. Stages and Domains of development, Principles of growth and development. Developmental milestones. Conception, Pregnancy and Birth. Factors influencing pregnancy. Introduction to Childhood, Adolescence and Adulthood: Development in Infancy and Preschool. Physical, Motor, Cognitive, Language, Socio-emotional development during Early and Middle childhood years. Overview of Adolescence and Puberty. Physical and Physiological changes during Adolescence. Cognitive, Language, Socio-emotional and Motor development during adolescence. Physical and Physiological changes during middle adulthood and Old age. Early views on human development: Western and Indian Perspective of Human Development**,**Psychosexual DevelopmentTheory and Psychoanalytic Theory of Personality – Sigmund Freud**,** Psychosocial Theory – Erik Erikson**,** Social Learning Theory – Albert Bandura Learning Theories – Watson, Pavlov and Skinner,Cognitive Development Theory – Jean Piaget

Socio-Cultural theory of Cognitive Development – Vygotsky, Kohlberg's Moral Judgement Theory ,Ecological Theory – Urie Bronfenbrenner.

Unit III: Clothing and Textile: Definition and Classification of textile fibres. History, manufacture, properties (chemical, physical and microscopic) and importance of following textile fibres: Natural Fibres Protein: wool, silk ,Cellulose : cotton, linen, Mineral : Asbestos. Man-made/Synthetic Fibres: Cellulose: Rayon, Polyamide : Nylon Polyester, Acrylic and Modacrylic, Olefin, Elastomeric, Mineral: Glass,Metallic, Yarn: definition and basic concept of:Yarn construction Process : Mechanical spinning, Chemical Spinning, Type of yarn, Properties of yarns: Yarn numbering system-count, denier, Tex, Twists in yarns,Textured yarns, Fibre blends,The effect of yarn on the finished fabrics.Fabric construction **-**Structure and

working of handloom**,**Weaving process**,**Types of weaves**,** Other processes of fabric preparation- Felting, Braiding, Netting, Knitting, Bonding, Lace. Finishing of Textiles:Bleaching.**,** Mercerization.Weighing and sizing. Singeing,Beetling.Calendering.Tentering.Embossing.Napping.Water resistant and waterproof.Crease resistant.Sanforization.Moth resistant andBacteriostate.Antistatic.Stain and soil resistant. Dyed and printed textiles:Kalamkari (painted and block printed), Patola, bandhani (tie and dye) of Gujarat and Rajasthan.Ikat of Orissa.Woven textiles:Brocades of Uttar Pradesh Baluchar of West Bengal,Brocades of South India,Muslin of Bengal,Shawls of Kashmir. Embroidered Textiles:Chikankari of Lucknow,Phulkari of Punjab,Kantha of Bengal,Kashidakari of Kashmir,Kasuti of Karnataka,Zari embroidery,Embroidery of Kutch and kathiawar. Pattern Making:Techniques of pattern making.Principles and application of flat patterns for different styles..Draping.: concept, requirements, technique, advantages and disadvantages. Fitting-Principle of fitting.Common fitting problems and remedial methods. Fashion design and Merchandising, Fashion terminology - Fashion, style, Fad, classic.Fashion Development - History and Evolution, Fashion Merchandising, Stages of apparel production, Quality Assurance in the Garment Industry, Care and Maintenance of fabrics, Laundry equipment - Washing drying and ironing.

Unit IV: Resource Management: Human Resource Management -Significance and functions of HRM, Hospitality Management -Concept of different hospitality establishments, Introduction to Fundamentals of art : Design, Definition and types : Structural and Decorative Elements of design : Line Size Form Structure Space Pattern Shape Light : Characteristics and classification Study of colours – classification, dimensions, colour schemes and effect principles of design – definition and their characteristics and types : Balance Harmony Scale Proportion Rhythm Emphasis.Family housing needs – protective, economic, affectionale, standard of living, housing goals, function, Factors influencing selective and purchase of site for house building:Legal aspects, location, physical features, soil condition, services, housing Cost, Housing- Principles of house planning – grouping, orientation, circulation, flexibility, privacy, spaciousness, aesthetics, economy, light and ventilation. Planning different residential spaces: entrance, living rooms, drawing rooms, bedrooms, store rooms, study rooms, bath room, Kitchen planning – types of kitchen, planning different work areas in the kitchen.Furnitures:Types of furniture.Selection of furniture. Furnishing : factors affecting furnishing choices.Soft furnishing – selection and care of bed linen, table linen, Curtains and draperies: type, selection and care.Floor covering, rugs and carpets. Types, care and cleaning.

Unit V: Extension Education: Concept of Extension:Meaning of extension,Origin and wider understanding of the meaning of extension education.Principles, scope, limitations. Goals,philosophy and role of extension education.Role of extension worker,Qualities,TrainingExtension Education Process:Environment for learning, role of educator, role of the people in learning and development,Learning experiences imposed information oriented to experiences.Community organization:Concept of organization in community development,Process of community

organization.Leadership Patterns:Traditional leadership –role and functionsEmerging leadership-Shared leadership,Leadership and community organization for development.Concept of development communication.Meaning and importance of communication in development, purpose of communication.Existing patterns of communication. Factors that helps or hinders communication.Communication process: one way and two way or interactive communication.Gaps in communication or distortions in transmission of message and their causes;Importance of two way communication, Basis for effective, interactive communication, Methods of communication in development methods to reach individuals,Methods to reach small groups,Methods to reach masses.Media for Development communication:Folk media,Games,Puppet play,Print media,Newspapers – articles, stories,Audios/visuals, audio-visual media,Films: documentary, features Selection, preparation and effective use of media in development education and evaluation of the effectiveness of the media**.**Programmes of department of women and child development.Agencies working for women- SEWA,CHETNA and AIWC.Agencies working for aged, HelpAge India, Grant-in- aid programmes of Central and State Government.Agencies working for Youth.Methods and Approaches of Extension - classification, characteristics and selection,People's participation and social mobilization in development, Diffusion of innovation and adoption

Unit VI: Human Physiology- Introduction to Human body: Organs, tissue and cell, cell structure, cellular organelles and their functions, Blood System: Blood - Composition and functions. Plasma Protein -Composition and functions. Lymphatic system , structure and function.Cardiovascular system: Structure of heart, blood vessels (systemic, pulmonary, and portal) Cardiac cycle, cardiac output (Definition and factors affecting) , Blood pressure (Definition and factors affecting) , Respiratory Physiology: general overview of the respiratory passage, structure and functions. Mechanism of internal and external respiration. Structure of lungs and its functionsDigestive system: Overview of the Gastrointestinal Tract, organization and functions. Structure and functions of: Stomach, Liver, Gallbladder, Pancreas.Excretory System:Structure and functions of kidney and nephrons.Endocrine System: Overview of endocrine system, feedback mechanism/cascade. Structure of main endocrine glands and their functions: Pituitary, Thyroid, Parathyroid, Adrenal Glands, sex and Pancreatic hormones. Reproductive system:Structure and function of uterus and ovaries, Physiology of menstruation and menopause.Nervous System-Overview of organization of nervous system, different types, structure of neurons and nerve impulse transduction.

UNIT VII: Biochemistry -Definition, objectives, scope and inter-relationship between biochemistry and other biological sciences, Carbohydrates -Definitions, classification, structure and general properties. Carbohydrate metabolism, glycolysis, gluconeogenesis, glycogenesis, glycogenolysis, blood sugar regulation**,** Inborn errors of metabolism**.** Lipids - Definitions and classification of lipid, Composition and properties of fats,Oxidation and biosynthesis of fatty acids**,** Ketone bodies and ketosis

& significance of cholesterol. Proteins -Definition, classification, structure and properties of amino acids ,Essential and non-essential amino acids, Definition, classification, elementary knowledge of structure of proteins ,Protein metabolism , Transamination, deamination, carboxylation, Urea cycle. Enzymes-Introduction to Enzymes, Classification and properties of Enzymes, Co-enzymes, Enzyme Inhibition .Water, electrolyte and acid base balance.

Unit VIII: Food Microbiology-Introduction to microbiology and its relevance to everyday life,

general morphology of micro-organisms- general characteristics of bacteria, fungi, virus, protozoa and algae,Growth of micro-organism- growth curve, effect of environmental factors on growth of microorganism, pH, water activities, oxygen availability, temperature ,Growth media, types and uses.Control of micro-organisms-Physical and chemical methods.Microbial contamination and spoilage of different kinds of foods and their prevention.Food preservation: Importance, principles and methods- home and commercial, use of high and low temperature, pasteurization,dehydration,freezing, irradiation and use of preservatives.

UNIT IX- Consumer and Entrepreneurship- Consumer Education and Protection, Consumer Problems. Consumer Protection Act (2019) - consumer rights and responsibilities. Income and expenditure Overview of household income, Types of family income and Budgets. Maintaining household accounts. Factors influencing expenditure pattern. Family savings and investments-need, principles, Personal finance management. National Income and per Capita. Income.Definition and concept of Entrepreneurship, difference between Wage Employment, self employment and Entrepreneurship**,** Role of entrepreneurs in economic development of India. Role of women entrepreneurs: opportunities and problems**.** Qualities of personality of an entrepreneur **.**Entrepreneurial motivation**,**Process of Enterprise development and management**,** Identification of opportunity**,**Preplanning of formalities**,** Preparation of preliminary project report,Basics of Costing and pricing**,**Basics of Production management**,** Basics of Marketing management**,**.Basics of Human Resource management**,**Basics of Finance management**,** Ergonomical safety & security**,** Patent Rules,Environmental considerations and social responsibilities.Role of support institutions to promote small entrepreneurs.

Unit X- Statistics-Introduction to statistics; definitions, functions, uses and limitations Classification and tabulation of data; qualitative and quantitative classification, discrete and continuous variables, frequency tables, grouped and ungrouped data. Diagrammatic representation of data; One, Two and Three dimensional diagrams with applications. Graphical representation of data; Histogram, frequency polygon, frequency curve, ogives. Measures of central tendency; Introduction to basic concepts of logarithms, AM, GM, HM, median. mode with merits, demerits and uses, relationship between AM, GM and HM, quartile deviation, mean deviation from AM, median and mode, variance, standard deviation, coefficient of variation. Measures of dispersion; range coefficients, inter quartile range, quartile deviation, coefficient of quartile deviation, mean deviation from AM, median and

mode, variance, standard deviation, coefficient variation. Moments; Raw moments, Central moments for grouped and ungrouped data, relationship between raw moments and central moments. Measures of skewness and kurtosis; definitions of symmetrical distribution, skewness and kurtosis, relationship between mean, median and mode and between quartiles for symmetrical and skewed distributions. Probability theory; introduction to simple problems of permutations and combinations, definition of random experiment sample space, events, mutually exclusive and equally likely events. Definition of probability, simple problems based on probability, addition and multiplication theorem of probability, conditional events and independent events, Correlation and linear regression analysis; definition of correlation its types, scatter diagrams, Karl Pearson's formula of correlation coefficients, properties of correlation coefficient, definition of regression, regression equations of Y on X and of X on Y, relationship between correlation coefficient and regression coefficients. Problems based on correlation and regression. Tests of significance; basic definitions, hypothesis, null and alternative hypothesis, tests statistic, testing of hypothesis, one sample t-test and two sample fisher's t-test. Chi-square test of goodness of fit and Chi-square test of independence of attributes. Discrete and continuous probability distributions; definition of random variable, discrete and continuous random variables probability distribution of random variable, concepts of discrete and continuous probability distribution, basic concept 582 583 Report of the ICAR Fifth Deans' Committee Report of the ICAR Fifth Deans' Committee of binomial theorem, binomial distribution, Poisson distribution, normal distribution and applications. Analysis of variance; definition of analysis of variance, assignable and nonassignable factors, analysis of one way classified data. Introduction to sampling methods; definition of population, random sample, sampling versus complete enumeration, use of random number table for selecting a simple random sample, simple random sampling with and without replacements.