

**SYLLABUS for Online Written Test Examination**  
**Contractual Vacancies, National Health Mission, Madhya Pradesh**

<b>SYLLABUS FOR ONLINE WRITTEN TEST</b>		
<b>Position Name: Contractual Female Feeding Demonstrator under Child Health Nutrition Programme</b>		
<b>#</b>	<b>Subject</b>	<b>Marks</b>
1	Basic Nutrition & Food commodities	15
2	Nutritional Biochemistry	15
3	Human Physiology	15
4	Family Meal Management & community Nutrition	15
5	Food service management & Accountancy	10
6	Food microbiology sanitation & hygiene	15
7	Clinical Nutrition Dietetics	15
<b>Total Marks</b>		<b>100</b>

**Basic Nutrition & Food commodities**

**UNIT-1**

Introduction to nutrition food as a source of nutrition, function of food, definition of nutrition, nutrition, adequate, optimum and good nutrition, malnutrition.

Food guide- basic five food groups- how to use food guide. Water as a nutrition, function, sources requirement water balance-effect of deficiency.

Energy, unit of energy food a source of energy, energy value of food. The body's need for energy B.M.R. factors effecting BMR.

Carbohydrates composition. Classification, food sources, function, storage in the body.

Fat and oil composition, saturated, unsaturated fatty acids, classification function of fats.

**UNIT-II**

Protein composition, sources, essential, non-essential amino acids, function, protein, deficiency.

Vitamins Classification sources, unit of measurement, deficiency (every brief) about following Vitamin: Fat soluble vitamin-Vitamin A, Vitamin D, Vitamin E, Vitamin K

Water soluble vitamins- Ascorbic acid, Thiamine, Riboflavin, Niacin, B6, folic acid & B12

Minerals-functions, sources, bioavailability and deficiency of following minerals calcium, iron, iodine, fluorine, sodium, potassium.

**UNIT-III**

Cereal & millets-, Types and its products, structure, Processing, use in variety, storage, nutrition aspects & cost.

Pulses & legumes-classification, preparation, and nutritive value.

Convenience foods - Types, advantages, and contribution to diet.

Vegetables & Fruits -Variety, selection, purchase, Storage availability, cost, uses & nutrition aspects of Raw & processed vegetables & fruits.

#### **UNIT-IV**

Milk & Milk products- Composition, classification, quality processing, storage spoilage uses cost, nutritional aspects of milk curds butter milk, paneer khoa, cheese, ice-cream, kulfi & various kind of processed milk.

Tea, coffee, chocolates & cocoa powder growth cultivation. Processing cost & nutrition aspects.

Eggs- Structures & composition, Production, Grade, quality, selection Storage, spoilage, uses, cost & nutritional aspects.

Fish, poultry & meat- Selection, purchase storage, uses, cost & nutritional aspect spoilage of fish poultry & meal.

#### **UNIT-V**

Sugar & sugar products - Different forms of sugar (sugar jiggery, honey syrup) manufacture, selection, storage & use as preserves.

Fat & oils - Types & sources of fats & oils (animal & vegetables) processing, uses storage cost & nutritional aspects.

Food additives- Spices, condiments, herbs, extracts, concentrates, essences & food color origin.

Classification description uses specification, storage.

Types of additives, used in cookery bakery and preservation.

### **Nutritional Biochemistry**

#### **UNIT I**

**BIOLOGICAL OXIDATION**- Oxidant, reductant, Theories on Biological Oxidative phosphorylation, High energy phosphates, Myokinase reaction, dehydrogenase, cytochromes, Enzymes - Definition, types and classification of enzymes, definition and types of coenzymes, Phosphate pathway.

#### **UNIT II**

**MOLECULAR ASPECTS OF TRANSPORT** - passive diffusion facilitated diffusion, action transport, Electron Transport mechanism NADH, electron transport chain and Energy conservation, Nucleic acids, structure. RNA types, structure, replication, Genetic code Protein Biosynthesis. DNA & Recombinant,

#### **UNIT III**

**CARBOHYDRATES**- Structure and properties of Monosaccharides - glucose, fructose, galactose. Disaccharides -maltose, lactose, sucrose. Polysaccharides - Dextrin, starch, glycogen. Metabolism - Glycolysis, TCA Cycle, Gluconeogenesis, HMP Pathway. Major metabolic pathways: carbohydrate metabolism: glycolysis. Metabolism of lactate & pyruvate, citric acid cycle, gluconeogenesis.

#### **UNIT IV**

**LIPIDS**-Types and properties of Fatty acids, composition and properties of fats, significance of acid value, Iodine value and Saponification value. Classification and structure of phospholipids, structure of glycolipids, types, and structure of sterols. Lipoproteins - Types, composition, role and significance in diseases. Metabolism-Beta Oxidation of fatty acids, Cholesterol, Phospholipid synthesis. Lipid metabolism: B oxidation of fat, ketosis.

## **UNIT-V**

**PROTEINS**- Structure and properties of Proteins, Amino acids, Essentials, and non-essential amino acid. Metabolism - Kreb's Henseleit cycle. Protein metabolism: General pathways, deamination, transamination urea cycle.

## **Human Physiology**

### **UNIT-I**

**Introduction to Human Physiology** - knowledge about different organs, their functions, and Muscular and Skeletal System, Meaning and Definition

Cell and Tissues-Cell- Introduction, Structure and Functions, Tissues - Introduction, Structure and Functions, Types of Tissues

Muscular System-Structure and Functions, Types of muscle, Mechanism of Muscle Contraction, Muscle Fatigue

Skeletal System- Structure and Functions, Types of Bones - Axial and Appendicular Skeleton, Joints

### **UNIT-II**

**Blood and Blood Circulatory System** -- Blood-Blood Composition and Functions, Types of Blood Cells, Blood Clotting Process, Blood Groups and Rh Factor

Cardio-Vascular System- Structure and functions of Heart, Blood Vessels-Arteries, Veins and Capillaries, Blood Circulation Process, Cardiac Cycle- Heart Rate, Heart Sound, Pulse Rate

Blood Pressure- Definition, Physiological variations, Factors controlling Blood Pressure, ECG

### **UNIT-III**

#### **Lymphatic, Respiratory and Digestive System**

Lymphatic Systems-Lymph Glands and its functions, Structure and Functions of Spleen Respiratory system-Organs, Structure and Functions, Mechanism of respiration - Chemical respiration and tissue respiration

Digestive System- Organs, structure and functions, Supporting Organs of the digestive system – Liver, Pancreas and Gall Bladder, Process of Digestion and Absorption.

### **UNIT-IV**

#### **Excretory, Reproductive and Endocrine Systems**

Excretory System- Organs, structure and functions, Formation of urine, Normal and Abnormal constituents of urine, Concentrating and diluting mechanism of urine, Micturition Reproductive System- Male and Female reproductive organs- structure and functions, Physiology of menstruation, menopause and andropause, Physiology of Fertilization

Endocrine System- Structure and functions, Hormones- Introduction, Composition and Functions, mode of action, Hypo, and hyperactivity of endocrine glands.

### **UNIT-V**

#### **Nervous System and Sense Organs**

Nervous System- Structure of nerve cell and nerve fibre, Classification of nervous system, central nervous system- Brain and Spinal Cord-: Structure and Functions, Nerve impulses, Reflex Action.

Sense Organs- Skin-structure and functions, Eye-structure and functions, Physiology of vision, Visual impairments--Myopia and Hypermetropia, Ear-Structure and functions, Mechanism of hearing.

# **Family Meal Management & Community Nutrition**

## **UNIT-I**

Introduction to meal management- Balanced diet-food guide- basic 5 food groups & sources & nutrients. Basic principles of meal Planning- objectives/ of meal planning, food cost Factors affecting meal planning. Fortification and Enrichment of food.

Minimum Nutritional Requirement and RDA--Formulation of RDA and Dietary Guidelines Reference Man and Reference Woman. Adult consumption unit. 3. Energy in Human Nutrition: Idea of Energy and its unit, Energy Balance, Assessment of Energy Requirements-deficiency and excess, Determination of Energy in food, B.M.R and its regulation, S.D.A.

Concept and definition of terms-Nutrition, Malnutrition and Health, Scope of Nutrition. Nutritional problem Confronting our country Protein Energy Malnutrition. Causes of malnutrition in India. Balance between food and population growth.

## **UNIT-II**

Nutrition in pregnancy- nutritional requirements- food selection. Complications of pregnancy. Physiological changes during pregnancy.

Nutrition during lactation Physiology of lactation- Nutritional requirement. Food taboos during lactation, galactagogues.

Nutrition during infancy growth & development- Nutrition requirement- breast feeding, colostrum its importance, formula feeding introduction of supplementary foods.

Breast-feeding & its importance Hazards of bottle-feeding

Weaning- food planning, formulating & preparing of formula feeds importance of correct & timely weaning.

## **UNIT-III**

Nutrition during early childhood (toddler/ preschool) Growth & development nutritional requirement. Nutrition related problem, Feeding Pattern specific deficiency disease- night blindness Rickets, scurvy. Nutrition of school going children-nutritional requirement, importance of snacks & school lunch/Tiffin. Nutrition during adolescences Growth & development nutrients need food likes and dislikes.

Factors influencing Food Habits. Nutritional Problems of adolescence-anaemia, overweight and underweight.

Geriatric Nutrition-Factors Affecting Food intake and nutrient needs, Nutritional related problems. Physiological changes during old age

## **UNIT-IV**

Assessment of nutritional Status; Sampling Techniques Identification of risk groups.

Direct Assessment-Diet survey. Anthropometry, clinical & biochemical estimation Use of growth chart In direct assessment-Food Balance sheet, agriculture data, ecological parameter & vita statistics; Nutrition Exhibition- Lecture, Demonstration, Audio-visual Aids. Recent advances in community nutrition research.

## **UNIT-V**

Nutrition and Health in National Development :-

Nutrition & infection-Relationship, Immunization schedule & its importance, ICDS- Mid day Meal Program.

National & international agencies, ANP, SNP, FAO, UNICEF, CARE, AID, ICMR, ICAR, CSIR, NIN  
Nutrition intervention scheme in the community.

Obesity and underweight, Causes, Dietary, Treatment complication and its ill Effects:

## **Food service management & Accountancy**

### **UNIT-I**

Organization and Management- Definition and types of organization

Objectives of different food services Organization as (a). industrial (b). institutional (c) Hospital

Tools of Management- Definition and function, Tangible Tools: Organization Chart, job Description, job specification, job analysis & Work Schedule Intangible Tools; Inherited and acquired personal qualities.

### **UNIT-II**

Personnel management; Recruitment, selection and training of personnel, work standards, supervision, performance.

Labour Laws and legislation- Management of Resources; Times, Energy. Space- layout of plant and work area's Safety, security, ventilation, and lightning of food service unit.

### **UNIT-III**

Menu Planning: Purchasing- Procurement, product selection, specifications, Methods of Purchasing. purchase process receiving, storage- dry and low temperature and inventory-issuing Products, Inventory Record & Inventory control tools

Food Material Management: Purchasing- Procurement, product Selection, specifications, Methods of purchasing, purchase process. Receiving, storage- Dry and low temperature and inventory issuing products, inventory Record & inventory control tools.

Types of food services: Conventional, Commissary, Ready to eat and Assembly/Serve food Service. Equipment's: Conventional equipment-classification and selection, Care and Maintenance of Equipment's.

### **UNIT-IV**

Financial Management definition and scope Journal, Transaction, Narration to a journal entry. Ledger, indexing accounts. Cash book, Layout of cash book recording of transaction in such book Profit & loss account & balance sheet.

### **UNIT-V**

Food cost accountancy Cost concept method & calculation of food cost, Cost control- Cost classification. Techniques of costing- Budget control, Standard costing, Marginal costing.

## **Clinical Nutrition Dietetics**

### **UNIT-I**

Basic concept of Diet Therapy- Therapeutic adaptation of Normal diet pre & post-operative diet Routine Hospital diet, -Liquid soft, & full liquid diet, Tube feeding & Parental Feeding. Definition of Nutritional care, inter Personal Relationship with patient, planning and implementation dietary care.

Team approach to nutritional care.

Diet counselling, education of the patient and follow up, Nutritional Assessment of patients, Dietary prescription & Education.

## **UNIT-II**

Nutrient and Drug interaction

Malnutrition-classification-Kwashiorkor & Marasmus causes symptoms and treatment. Obesity and underweight, Causes, Dietary Treatment complication ill Effects, Diet in fever metabolism (Typhoid, influenza, recurrent malaria and Tuberculosis)- Dietary Consideration

Diet in disturbance of stomach: causes, Symptom and dietary modification- Gastritis, Peptic Ulcer, Diet in Disturbance of small intestine & Colon causes, symptom and dietary modification- Diarrhoea, Constipation (atonic & Spastic), Sprue, Celiac disease, Lactose intolerance, Ulcerative colitis.

## **UNIT-III**

Disease of liver: Causes, Symptoms and dietary treatment- Jaundice, Hepatitis, Cirrhosis, Hepatic coma Role of Alcohol in liver Disease

Disease of Gall bladder; causes, symptom & treatment- Cholecystitis, Cholelithiasis.

Diabetes mellitus incidence and pre-disposing factor, Symptom, causes Types and test for estimation, Metabolism in diabetes. Dietary Treatment and meal management, Hypoglycaemic agent. Insulin & its type. Complication of Diabetes.

## **UNIT-IV**

Cardiovascular Diseases: Causes, Symptom and Dietary modification and role of specific nutrient

Hypertension, importance of sodium restriction diet, Hyperlipidaemia, Atherosclerosis, Chronic Diseases of heart .

Diet in Allergies-Common food allergies Treatment, Gout- Causes, Symptoms & diet, Phenyl Ketonuria. Maple Syrup Urine disease.

## **UNIT-V**

Renal Disease

Function of Kidney Causes, symptom & Dietary Treatment- Acute and Chronic glomerulo nephritis, Nephrosis

Renal failure & Dialysis, Urinary calculi, Acid and Alkali Producing Natural food.

Burns and Cancer- Diet counselling, education of the patient and follow up, Nutritional Assessment of patients, Dietary prescription & Education

## **Food Microbiology, Sanitation & Hygiene**

### **UNIT-I**

Introduction to microbiology & Historical development of microbiology. General morphology of micro-Organisms

Characteristics of Bacteria, fungi, virus, protozoa, algae.

Micro-Organisms-growth curve- Effect of Environmental factors on growth of micro-organisms-pH

Water activity-oxygen availability, Temperature.

## **UNIT-II**

Microbiology of different food- spoilage and contamination-source, types, effect on the following. Cereals & cereal products, Sugar & sugar products, Vegetables & fruits, Meat & meat products, Fish & meat. Eggs & poultry. Milk & milk products, Canned food

## **UNIT-III**

Environmental microbiology- water, air, soil, Microbial intoxication & infection. Causes symptoms & method of control.

Food borne illnesses- Bacteria, virus, molds, yeasts, and parasites. Beneficial effect of micro-organisms

Other food hazards-chemical, antibiotics, hormones, metal Contamination- poisonous foods

Other agents of contamination- humans, domestic animals, vermin's, birds.

## **UNIT-IV**

Importance of personal hygiene of food handler-habits-clothes and illness. Education of food handler in handling of serving food. Safety in food procurement, storage, handling and preparation, Microbiological standards of food safety. (HACCP, FPO, FDA)

Sterilization and disinfection- Kitchen design equipment and system, Structure and layout of food premises.

## **UNIT-V**

Waste product handling- Planning for waste disposal. Solid wastes and liquid wastes

Control of infestation- Rodent control rats, mice- rodent, proofing destruction, Vector control- use of pesticides.

Food sanitation, control, and inspection- planning and implementation of training programme for health personnel.