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|  | **SYLLABUS FOR HUMAN NUTRITION 1st YEAR** | |
|  | **ANATOMY AND PHYSIOLOGY** | |
|  | **HN-101** | |
|  | **PAPER-1** | |
| 1 | **CELL AND TISSUE:** Structure and functioning of the cell , epithelial, muscular , connective ,and nervous tissues. | |
| 2 | **BLOOD** ;Composition , fuinction , coagulation , thrombosis, blood volume , blood groups and blood transfusion, anaemia, Leukaemia, Haemolysis. | |
| 3 | **SKELETAL SYSTEM**: Bones , joint , bone formation ( Brief study) | |
| 4 | **CARDIOVASCULAR SYSTEM** : Anatomy of heart and blood vessels , Heart rate , cardiac cycle , Cardiac output , Blod pressure , Hypertension , radial pulse , ECG and its significance , varicose vein , arteriosclerosis. | |
| 5 | **LYMPATHIC SYSTEM :** Lymph gland and its functions spleen- structure and functions | |
| 6 | **RESPIRATORY SYSTEM** : Structure of respiratory system , Mechanism of respiration ,chemical respiration , tissues respiration, regulation of respiration. Common disease- Tuberculosis ,Asthma , Pleurisy, Cough , hiccups. | |
| 7 | **DIGESTIVE SYSTEM :** Organs of digestion , their function , Digestive juices, Digestion and adsorption of carbohydrate , protein and fats . | |
| 8 | **EXCRETORY SYSTEM:** Structure and function of kidneys , Nephron , Formation of Urine. Normal and abnormal constituents of urine examination. | |
| 9 | **SKIN:** Structure and function . | |
| 10 | **ENDOCRINE GLAND** : Endocrine glands -their structue and functions , disorders. | |
| 11 | **REPRODUCTIVE SYSTEM :** Anatomy of the male and female reproductive organs. Physiology of menstruation. | |
| 12 | **NERVOUS SYSTEM :** Central nervous system and its function . Peripheral nervous system and its function. | |
| 13 | **SPECIAL SENSES:** Structure and function of eye , ear , nose , tongue and skin. | |
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|  | **PAPER - II** | |
|  | **MICROBIOLOGY AND HYGIENE** | |
|  | **HN-102** | |
|  | **THEORY** | |
| 1 | Introduction of microbiology and its relevance to everyday life , General characteristics of bacteria , fungi , virus , Protozoa and algae. | |
| 2 | **Growth of micro-organisms :** Growth curve , effect of environment factors in growth of micro-organism-pH, water activity , oxygen availability , temperature and others | |
| 3 | **Microbiology of different foods -** Spoilage , contamination - sources types , effect on the following ; | |
|  | Cereal and cereal products | |
|  | \* Sugar and its products | |
|  | \* vegetables and fruits | |
|  | \* Meat and meat products | |
|  | \* Fish , eggs and poultry | |
|  | Milk and milk product | |
|  | Canned foods. | |
| 4 | **Environmental Microbiology ;** | |
|  | \* Water and water borne disease | |
|  | \* Air and air borne disease | |
|  | \* Soil and soil borne disease | |
|  | \* Sewage and disease. | |
| 5 | **Beneficial effect of micro-organism** | |
| 6 | **Personal Hygiene-** hygiene of external body organs . | |
|  | \* Body structure | |
|  | \* Clothing and bedding . | |
|  | \* Common infectious disease. | |
| 7 | **Conntrol of infestations** | |
|  | \* Rodent control - Rats , mice -rodent , proofing , destruction. | |
|  | \* Vector control - use of pesticides | |
| 8 | **Food Sanitation-** Control and inspection . Planning and implementation of training programmmes for health personal . | |
| 9 | **Sanitation -** Kitchen design equipment and systems | |
|  | \* Structure and layout of food | |
|  | \* Premises - maintaining clean environment . | |
|  | \* Selecting and installing equipment , cleaning equipments. | |
| 10 | **Waste product handling** : Planning for waste disposal solid waste and liquid waste | |
| 11 | **Food preservattion** –Methods | |
| 12 | **Food Adulteration** - In brief | |
| `13 | **Food Laws and Foodn standards.** | |
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|  | **HUMAN PHYSIOLOGY , ANATOMY AND MICROBIOLOGY** | |
|  | **PRACTICALS** | |
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| 1 | Microscope and its use | |
| 2 | Microscope examination of prepared slides :- | |
| i | Epithelial tissues | |
| ii | connective tissues | |
| iii | Muscle tissues | |
| iv | Nerve cell | |
| v | Bacteria | |
| vi | Fungi | |
| vii | Viruses | |
| 3 | BLOOD : Microscope examination of prepared slides:- | |
| i | Fresh mountb of blodd | |
| ii | Stained blood smear | |
| 4 | Testing of blood groups using typed serum | |
| 5 | Estimation of erthrocyte sedimentation rate ( ESR) | |
| 6 | Haemoglobin estimation using haemoglobinometer | |
| 7 | R.B.C count | |
| 8 | W.B.C count | |
| 9 | Estimation of blleding time , clotting time | |
| 10 | Recording blood pressure -using Sphygmomanometer | |
| 11 | Recording of pulse rate | |
| 12 | Measurement of body temperature , mouth , armpit and rectum. Preparation of temperature chart. | |
| 13 | Study of historical slides of differents organs | |
| 14 | Identification of bones of a skelet | |
| 15 | Studying different parts of human organs by using charts and models. | |
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|  | **BASIC NUTRITION** | |
|  | **HN-103** | |
|  | **THEORY** | |
| 1 | Definition of food , Nutrition < Malnutrition and health. | |
|  | \* Function of food | |
| 2 | Nutrient- Macro and micro nutrients | |
|  | \* Classification - function , RDA, Deficiency and excess.- Macronutients -Protein , Carbohydrate , fats and water - Micronutrients - Vitamins and Mineral | |
|  | \* Water soluble vitamins -B complex and vitamin C | |
|  | \* Mineral - Calcium , phosphorous , iron , magnesium , zinc , fluorine , iodine , seenium , copper , manganese | |
| 3 | Composition , structure and nutritional contribution of the following : | |
|  | \* Cereals | |
|  | \* Pulses | |
|  | \* Fruits | |
|  | \* Vegetables | |
|  | \* Milk and milk products | |
|  | \* Nuts and oil seeds | |
|  | \* Meat , fish and Poultry | |
|  | \* Eggs | |
|  | \* Tea , coffee , cocoa , chocolate | |
|  | \* Condiments and species | |
| 4 | Cooking Methods : Various methods of cooking and their effect on nutritive value , nutrients conservation during cooking. | |
|  | \* Improcving nutritional quality of foods | |
|  | \* Germination . Fermentation | |
|  | \* Supplementation | |
|  | \* Forttification and enrichments | |
| 5 | Meal planning : meaning importance objective of meal planning - Planning meals for | |
|  | \* Infant | |
|  | \* Preschool and school going child | |
|  | \* Adolescent | |
|  | \* Pregnancy | |
|  | \* Lactation | |
|  | \* Overweight | |
|  | \* Underweights | |
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|  | **BASIC NUTRITION** | |
|  | **PRACTICALS** | |
|  | Identification of food accordings to food groups and nutritive value | |
|  | Weights and measure | |
|  | Stardard household measure and edible sizes of fruits and vegetables | |
|  | Cooking of food using different cooking methods | |
|  | Germination , fermentation , sprouting. | |
|  | Preparation of rice recipes ( any two) | |
|  | Making of curds and paneer | |
|  | Preparation of fresh , vegetables salads and fruits punch | |
|  | Preparation of fresh vegetable sald and raitas | |
|  | Preparation of fruit salad and fruits punch | |
|  | Cakes and puddings | |
|  | Preparation of low cost recipes (any two) | |
|  | Planning Preparation and Calculation of Diests for | |
| Pre school Children | |
| School going Children | |
| Adolescent and adult | |
| Pregnancy | |
| Lactation | |
| Old age | |
| Over Weight and Under Weight | |
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| **PAPER-IV** | |
| **NUTRITIONAL BIOCHEMISTRY** | |
| **HN-04** | |
| ENERGY-Uite of measuring energy fuel value of food and calculation of energy value of diets. Fators Contributing to total energy Expenditure BMR, and factors affecting it SDA of food. | |
| CABOHYDRATE: Metabolism-glycogen sis glcogenolysis gluconeogenesis and citric acid cycle regulation of blood glucose levels. | |
| LIPID METABOLOSM: Oxidation of fatty acid ketosis and cholestrol metabolism lipoprotein in the blood composition and their function in brief | |
| PROTEIN: Metabolosm transmination decarboxylation and entry of amino acids into TCA cycle urea cycle | |
| ENZYEM: Definition classification chemical nature coenzymes factors affecting role of enzyem action enzyem inhibition | |
| Sructure of nitrogen bases nucleosides DNA and RNA. Mechanism of DNA replication and Transcription | |
| HORMONS: Hormones of pituitary thyroid parathyroid Adrenals Reproductive glad and pancreas. | |
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