

**SCHEME OF STUDIES AND EXAMINATION
DIPLOMA IN SANITATION TECHNOLOGY**

I st YEAR

SL NO	SUBJECT	THEORY		PRACTICALS		TOTAL	
		Hours	Marks	Hours	Marks	Hours	Marks
	PART-A						
	1.Communication skill in English	245	75	65	25	245	100
	2. General Foundation Course(Computer applications)	150	50	130	50	245	100
	Vocational subjects PART-B						
	1.Anatomy,Physiology,Biochemisty	80	100	120	100	200	200
	2. Concept of Drug action Fundamental general pathology and communicable disease	80	100	120	100	200	200
	3. food nutrition environmental health	80	100	120	100	200	200
	PART-C						
	On Job training (project work)	----	----	100	100	----	100
	TOTAL	635	425	655	475	1090	900

II nd YEAR

SL NO	SUBJECT	THEORY		PRACTICALS		TOTAL	
		Hours	Marks	Hours	Marks	Hours	Marks
	PART-A						
	1.Communication skill in English	245	75	65	25	245	100
	2. General Foundation Course(Computer applications)	150	50	130	50	245	100
	Vocational subjects PART-B						
	1. Health education and community health care	80	100	120	100	200	200
	2. National and international health programmes ,health information delivery system	80	100	120	100	200	200
	3. quality control of water and food	80	100	120	100	200	200
	PART-C						
	On Job training (project work)	----	----	100	100	----	100
	TOTAL	635	425	655	475	1090	900

Anatomy, Physiology, Biochemistry, Microbiology and Pathology

THEORY

Time 801 Hrs.

Anatomy

General introduction to human anatomy Definition of anatomy, definition of topographic term/terms used to describe the body. Cells and tissues of body Anatomical description of – Skin, Osteology (bone, structure, individual bones), Joints structure, joints of upper and lower limbs. Ligaments, fascia and bursae, Musculoskeletal (upper and lower extremities), Cardiovascular system, Lymphatic system (structure, function, Endocrine glands), Respiratory system (respiratory passages and organs), Digestive system (elementary canal structure) Urogenital system (male and female organs, kidney structure) Endocrine system (names, location and function) Sensory organs (eye nose and ear), Central nervous system.

Physiology

Functions and mechanism of Digestion, Respiration, Circulation, Nervous system, Role of endocrine glands, physiology of Time regulation Physiology of blood, Reproduction (Urogenital system), Vision, hearing and speech.

Biochemistry

Definition of Biochemistry – Elementary ideas/overview of general metabolism of Carbohydrates Lipids, proteins, different types of enzymes and their functions

Microbiology

Microscope and Microscopy – Introduction, micro organism, classification, epidemiology, sample collection transportation and preservation,

Pathology

Introduction to pathology, definition, etiology and classification of Inflammatory Neoplastic, Metabolic, congenital

Paper – II

PRACTICAL

Time – 120 Hrs

Anatomy

Demonstration of surface marking of organs:- Heart, Lungs, Spleen, stomach, important bony Landmarks, arteries, veins, nerves, joints, Arteries – carotid, brachial, medial, anterior, tibial Veins – jugular, cubital femoral, saphenous Nerves – posterior, auricular, ulnar, lateral popliteal and sciatic. Bony Prominences - clavicle, anterior iliac crest posterior iliac crest, suprasternal notch sternum ribs, vertebral column, anterior & superior iliac spine, pubic – symphysis, medial and lateral malleolae, patella tibial tubercle, Joints and their movement ball & socket joints, shoulder and hip joint hinge joint elbow and knee joint Study of microscope: Simple & Compound – Their different parts and functions. Identification of cells and basic tissues

Cell (examination of buccal mucous scraping) skin connective bone, cartilage nervous tissue, Muscle-skeletal (striated & non striated) and cardiac muscles. Identification of long bones, hip bones, vertebra, ribs, scapula, mandible, clavicle, skull, Demonstration of the interior of thorax with organs in situ (In model) such as lungs trachea heart aorta and venacava, esophagus diaphragm Demonstration of CRO technology for investigation of interior of abdomen with organs in situ such as stomach Live spleen pancreas, gall gladder, intestine, colon and kidneys, ureter and pelvic organs such as urinary bladder, rectum, In females-ovaries, fallopian tubes, uterus & vagina, In males-tests, vass deference, seminal vesicles, prostate, urethra, penis. Demonstration of brain spinal cord and spinal nerves, (Demonstration of organs should be done in models supplemented by visit to anatomy museum of medical College. However it must be supplemented by dissecting frog/rabbit/guinea pig

Physiology

Study of microscope (already covered in anatomy) Preparation of blood smear, Leishman's staining, identification of R.B.C. different types of W.B.C. and differential count of W.B.C. Pulse recording temperature recording respiration recording and maintenance of T.P.R. chart, effect of exercise on T.P.C. (this may be done amongst the class students themselves). Demonstration of blood pressure instrument (mercurial type) and recording of blood pressure

Pathology

Visit to Pathological Museum.

Biochemistry

Familiarity with laboratory glassware's, basic techniques like methods of measuring liquids methods of weighing cleaning of glassware's separation of solids from liquids.

Microbiology and Parasitology

THEORY

Introduction to Microbiology and Basic Laboratory Requirements

Introduction to Microbiology: Definition and Scope, Microbes and their classification Bacteria – structure nutrition and growth requirements bacterial toxins and enzymes, bacterial infection bacterial studies, Laboratory Requirements: Requirements and uses of common laboratory equipments-Incubator, Hot air oven, water bath, Anaerobic jar, Autoclave Vacuum pump Media pouring chamber, Refrigerator, Inspirator, Centrifuge, Microscopy principle-operation care and use of microscope, sterilization and disinfection: Physical chemical and mechanical methods, disposal of contaminated media, sterilization of media syringes, glassware, apparatus, Culture media, their preparation and use, Collection of clinical materials for microbiological investigations: Do's and Don't for the technician.

Laboratory Investigation in Bacteriology

Methods for laboratory investigation Hanging drop preparation Stained preparation Simple Gram, Sight Neelsen, Albert Spore stain, Negative stain,

Making a sterile transfer, Deferent techniques of inoculation and isolation of bacteria, Culture of various clinical specimens in the laboratory, Anaerobic cultivation Identification of bacteria cultural characters, biochemical reactions and serotyping, Antibiotic sensitivity tests, Bacteriological examination of water, Bacteriological examination of milk.

Identification procedure of different bacteria

Gram positive Cocci: Staphylococcus, Streptococci, Pheumococci.

Gram negative Gocci : Corynebacterium diptherial, Mycobacterium tuberculosis, Mycobacterium Laprac, Clostridium (the anaerobic spore-bearing bacilli)

Gram negative Bacilli : (a) Aerobic and facultative anaerobic : Entero bacteriaceac, Eschrichia Coli, Salmonella, Shigella, Klebsiella, Entrobacter, Proteins group, Other-Brucells, bordetella, Haemophilus (b) Oxidase positive glucose fermenters : Vibrio cholerae (c) Glucose oxidizers; Pseudomonas; Spirochactes-Trepenoma, Laptospira, Borrelia.

Virology and Serology:-

Classification, General Properties, Cultivation and Pathogenicity of viruses

Immunity, antigens, antibodies and antigen-antibody reactions and their application in thedeagnosis of deceases

Principles procedure, diagnostic significance of agglutination, precipitation, neutralization and complement fixation reactions, principles and classification of hypersensitivity reactions; Vaccines – Classification and uses of vaccines.

Parasitology and Mycology

Morphology, life cycle, pathogenicity and laboratory diagnosis of E. hystolytica , E. coli, Giaridea, Trichomonas, Plasmodia, Leishmania, Hook work Round wrm, Whip worm, Tape worm, Thread worm, Echinococcus granulosus, Dracunculus, Wacheria bancrofti; Preservation of stool culture-Principles and Procedures, Morphology and Cultivation of Pathogenic fungi-Candida, Aspergillus, Dermatophytes.

Paper – IV

PRACTICAL

Time 120 Hrs

Personal safety precautions, Emergency treatment for accidents

Care and cleaning of glass wares, syringes, apparatus, preparation of Pasteur pipettes and sealing of ampoules, Operation of autoclave, incubator, water bath, Ph meter, seitz filter, lovibond Ph comparator, vacuum pump, Operation of anaerobic systems; Sterilization packing, loading of materials in autoclave, hot air oven, inspisorator, Handling and care of microscope, handling feeding beeding of laboratory animals, Cleaning of cages, postmortem and disposal. Preparation of various media-pouring and storage, Hanging drop method, Collection of clinical materials-blood urine stool swabs etc, Receipt and recording of specimens in the laboratory and dispatch of specimen to reference laboratory, Z.N. Stain, Grams stain, Albert stain, Spore stains, Capsule staining, Leishman and Geimsa stain, Inoculation of clinical materials into media, Isolation of organisms in pure culture, morphology, cultural characters, identification and biochemical reactions of common microorganisms and slide agglutination tests, Bacteriological

examination of water milk and air, Antibiotic sensitivity tests, Disposal of contaminated materials, Preservation of stock culture, Fungal examination by wet smear and culture, Virology: Incubation of fertile eggs and inoculation by various routes, Serology: Widal, VDRL, Brucella Agglutination test, RIA test, CRP test, ASO test, Poul Bunnel test, Gel diffusion, Immunoelectrophoresis, Weil Felix test, Preparation of Salmonella for widal test, Collection, preservation and transportation of faecal materials for examination of parasites, Preparation of stained and unstained faecal material for parasites. Concentration techniques of stool Preservation of parasites Identification of ova and cyst in stool

HEALTH, DISEASE AND ENVIRONMENT

- (I) Assessment of Sanitary Quality of Water
- (ii) Chlorine demand pf water
 - (i) Disinfection of water (Well) by use of bleaching powder, Use of Chlorine tablet
 - (ii) For disinfection of water in small container.
 - (iii) Demonstration of Dry and Water