अध्याय - 04

पाठ्यक्रम

(परीक्षा में केवल एक प्रश्न पत्र रहेगा)

सामान्य प्रशासन विभाग, भोपाल मंत्रालय वल्लभ भवन, भोपाल के संशोधित परिपत्र क्रमांक 6 दिनांक 10 फरवरी 2017 के अनुसार

प्रश्नपत्र का विवरण :

100 अंक

सं. क्र.	विषय	अंक
1	1. सामान्य ज्ञान	25
2	2. सामान्य हिन्दी	
3	3 .सामान्य अंग्रेजी	
4	4. सामान्य गणित	
5	6. सामान्य विज्ञान	
6	7. सामान्य अभिरूचि	
7	8. तकनीकी ट्रेड पर आधारित	75
	कुल अंक	100

तकनीकी ट्रेड पर आधारित पाठ्क्रम **(SYLLABUS)**

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(A) Physics

Unit and dimensions, dimensional analysis, S.I. Units, Motion in two dimensions Cases of uniform velocity and uniform acceleration, General relation between position and velocity, Uniform circular motion, Force and inertia. Newton's Laws of motion. Conservation of momentum and energy. Static and kinetic friction. Work energy and power collisions, potentialenergy, gravitational potential energy and its angular conversion to kinetic energy. Potentialenergy of a spring, Rigid body rotation and conservation of its momentum. Moment of inertia, theorems of parallel and perpendicular axis. (Moment of inertia of uniform ring, disc, hin rod and cylinder only).

Acceleration due to gravity and its variation, Universal law of gravitation, geostationary satellites, escape velocity.

Hooke's law, Young's modulus, shear and bulk modulus, surface energy and surface tension, kinetic theory of gases, gas laws, kinetic energy and temperature. Specific heats at constant volume and constant pressure. mechanical equivalent of heat, isothermal and adiabatic processes.

Heat conduction in one dimension, convection and radiation, Stefan's Law and Newton's law ofcooling Periodic motion, Simple harmonic motion, Oscillations due to spring, Wave motion principle of superposition; Progressive and stationary waves, Beats and Doppler effect.

Wave nature of light, Interference, Young's double slit experiment, Velocity of light and Doppler's effect in light. Reflection, refraction, total internal reflection, curved mirrors, Lenses, mirror and lens formulae. Dispersion in prism, absorption and emission spectra.

The human eye, defects of vision, magnification and resolving power of telescope and microscope "e" and "e/m" for an electron, Einstein's photoelectric equation, photocells. Bohr model of the atom, Hydrogen spectrum, Composition of nucleus, atomic masses and isotopes, radioactivity, laws of radio active decay, decay constant, half life and mean life,

Mass-energy relation, fission. X-Ray: Properties and uses.

Elementary ideas of conductor, semi-conductor and insulator, intrinsic and extrinsic semi conductors, np Junction as a rectifier.

Bar magnet, lines of force, torque on a bar magnet due to magnetic field, earth's magnetic field, tangent galvanometer, vibration magnetometer.

Coulomb's law of electrostatic, dielectric constant, electric field and potential due to a point charge, dipole, dipole field, Gauss's law in a simple geometrics. Electrostatic potential, capacitance, parallel plate and spherical capacitors capacitors in series and parallel, energy of a capacitor.

Electric current, Ohm's law, Kirchhoff's laws, resistances in series and parallel temperature dependence of resistance. Wheatstone bridge, potentiometer. Measurement of voltages and currents. Electric power, heating effects of currents, chemical effects and law of electrolysis, thermoelectricity. Biot Savart law.

Magnetic fields due to a straight wire circular loop and solenoid. Force on a moving charge in a manetic field (Lorentz force), Magnetic moment of a current loop, effect of a uniform magnetic field of a current loop, forces between two currents, moving coil, galvanometer, ammeter and voltmeter.

Electromagnetic induction induced emf, Faraday's law, Lenz's law, self and mutual inductance alternating currents, impedence and reactance growth and decay of current in L-R circuit, elementary idea of dynamo and transformer.

(B) Chemistry

General and Physical Chemistry

Structure of Atom : Constitution of nucleus : Bohr's atom model : quantum numbers Aufbau principle, electronic configuration of elements (upto-Kr) : de-Broglie relation, shapes of orbitals. Chemical Bond : Electrovalent, covalent and coordinate bonds, hybridization (sp) : hydrogen bond: shapes of molecules (VSERR theory) : bond polarity, resonance, Elements of VBT MOT.

Solutions: Modes of expressing concentrations of solutions: Types of solutions, Raoult's law of colligative properties, non-ideal solution, abnormal molecular weights.

Solid State: Crystal lattices, unit cells, Structure of ionic compounds: close packed structure lonic radii, imperfections (Point defects): Properties of solids. Nuclear Chemistry: Radio active radiations: half-life, radioactive decay, group displacement structure and properties of nucleus: Nuclear reaction, disintegration series, artificial transmutation: isotopes and their uses, Radio carbon dating.

Chemical Equilibrium: Chemical equilibrium, Law of mass action: KP and KC: Le Chatelier principle and its application. Ionic Equilibria in solutions, Solubility product, common ion effect, theories of acids and base hydrolysis of salts: pH : buffers.

Thermochemistry and Thermodynamics: Energy changes during a chemical reaction: intrinsic energy enthalpy, first law of thermodynamics: Hess's law, Heats of reactions: Second law of thermodynamics: entropy: free energy; spontaneity of a chemical reaction; free energy change and chemical equilibrium; free energy as energy available for useful work. Chemical kinetics, Rate of a reaction, factors affecting the rate, rate constant, rate expression,order of reaction, first order rate constant expression and characteristics, Arrhenous equation.

Electrochemistry: Oxidation, Oxidation number and ion-electron methods. Electrolytic conduction. Faraday's laws; voltaic cell, electrode potentials, electromotive force, Gibb's energy and cell potentials. Nornest equation, commercial cells, fuel cell, electrochemical theory of corrosion. Surface chemistry, Colloids and Catalysis; Adsorption, Colloids (types preparation and properties), Emulsions, Micelles, Catalysis: Types and characteristics.

Inorganic Chemistry :

Principles of metallurgical-operations : Furnaces, ore concentration, extraction, purification metallurgies of Na, Al, Fe, Cu, Ag, Zn and Pb and their properties.

Chemical periodicity : s, p, d and f-block elements, periodic Table: periodicity : atomic and ionic radii valency, ionization energy, electron affinity electronegativity, metallic character.

Comparative study of elements: Comparative study of the following families of elements: (i) alkali metals (ii) Alkaline earth metals (iii) Nitrogen family (iv) Oxygen family (v) Halogens (vi)Noble gases.

Transition metals: Electronic configuration of 3d-metal ions, oxidation states, other general characteristic properties, Potassium permanganate, Potassium dichromate.

Co-ordination compounds : Simple nomenclature, bounding and stability, classification and bonding in organometallics.

Chemical analysis: Chemistry involved is simple inorganic qualitative analysis: calculations based on acid-base titrimetry.

Organic Chemistry :

Calculation of empirical and molecular formula of organic compounds, Nomenclature of organic compounds, common functional groups isomerism structure and shapes of alkanes, alkanes and benzene.

Preparation properties and uses of alkynes, alkyl, benzene, petroleum, cracking octane number, gasoline additives.

Nomenclature, Physical chemical properties, correlation of physical properties with structure properties and uses of heloalkanes, halobenzenes, alcholos and phenols: General ideas of some polyhalogen compounds viz., dicholorothanes, dichloroethers, chloroform, carbon tetrachloride D.D.T., benzene hexachloride.

Nomenclature, methods of preparation, Chemical properties correlations of physical properties with structures and uses of ethers, aldehydes, ketones, carboxylic acids and their derivatives,

Brief account of the chemistry of Cyanides, isocyanides, amines and nitro compounds.

Polymers : Classification : Preparation and uses of common natural and synthetic polymers. Biomolecules : Classification, Structures and biological importance of carbohydrates amino acids, peptides, proteins and enzymes, nucleic acids and lipids.

(C) Botany

Structural organization of cell, cell theory. Light and Electron Microscopic view of cell. Structure and functions of cell organelles : Nucleus Mitochondria, Chloropast Endoplasmic reticulum, Golgi complex lysosome, microbodies microfilaments Ribosomes, Centrioles and Plasmids, Ekaryotic Chromosome (Morphology) cell and plasma membrane, Difference between plant and animal cell. Division, cell cycle significance of mitosis and meiosis.

Mendel's Laws of inheritance, Monohybrid and dihybrid cross; linage and crossing over of genetic material DNA replication, genetic code transcription, transcription and gene regulation. Difference between Prokaryote and Eukaryotes : Structure reproduction and economic importance of viruses Mycoplasma, Bacteriophage, Cynobacteria (Nostoc) and Bacteria.

Five Kingdom classification, Binomial Nomenclature, External morophology and life cycle of Spirogyra muccr, Funaria Selaginella and pinus.

Elementary knowledge of microsporogenesis megasporogenesis. Fertilization endosperm and embroyo development in Angiosperms.

Tissues and tissues systems, meristematic and permanent tissue, Mineral nutrition essential elements and their functions: uptake of minerals transport of water and solutes. Transpiration Photosynthesis and Respiration: Importance, mechanism and factors affecting thisprocessess: Photorespiration.

Enzymes and growth hormones with reference to their classification. Chemical nature, mode of action, importance. Elementary idea of photoperidism and phytochrome.

Ecosystem - Structures and function, Major ecosystems i.e. lake and Forest; Food chain, Food web and energy flow, Ecological crisis- Role of man in polluting Environment - Air, Water and Soil.

Role of plants in human welfare: A general knowledge of plant products of economic value- Drugs, Fibers, Cereals.

Wheat and Rice, Pulse (gram), Oil seeds (Ground nut), Sugarcane, Coal and petroleum. Food preservation-methods and importance. Principle of plant breeding and its role in improvement of crops. Biotechnolgy; scope and importance in Agriculture and industrial manufacture of cheese. Yoghurt, Alcohol Antibiotics.

(D) Zoology

Multicellularity - Structure and Function of Animal Life :

Structure and function of Animal tissues Epithelial, Connective Muscular, Skeletal and Nerve. Histology of mammalian organs - Stomach, Intestine, Liver, Kidney, Lung, Testes and Ovary. Structure and Physiology of different organ systems of Human body. Skin, Digestive system, Respiratory system, Circulatory system.

Skeleton, Joints, Muscles on the basic of movement receptors. Endocrine system with special reference to various Endocrine glands of man and hormonal coordination. Vitamins & minerals (source and disorders due to deficiencies).

Developmental Biology and Genetics:

Female reproductive cycles in mammals. Gametogenesis alongwith structure of sperm and ovum. Types of eggs, Fertilization, cleavage types of elevage and blastula. Development of mammals upto three germinal layers. Foetal membranestructure and functions. Growth, repair and ageing, aminocentesis. - Chromosomes, Types of chromosome, Human karyotype and chromosomal abnormalities and syndromes, Hormonal, Chromosomal and Genic Balance theory of sex determination, Sex linkage and sex linked inheritance in Man.

Blood Group and their significance, Blood Bank.

Tissue culture, Genetic Engineering (Brief idea). Mutation, gene mutation.

Human population, natality, Mortality, Sex ratio, Population explosion, dynamics of human life with respect to food supply, housing, health and standard of living, impact of population problems and their control.

Taxonomy Evolution and Economic Zoology:

Classification - Binomial and trinomial nomenclature, Basic features of classification, Classification of different animal phyla upto classes with characters and suitable examples. Origin of life, Theories of organic evolution-Darwin Lamarck, Synthetic Evidence of organic evolution, Human Evolution. Economic Zoology/Sericulture, Apiculture, Lac culture, Poultry, Fishery and Pearl industry.Protozoan disease in relation to man. Insect carrying diseases in relation to man. Cancer-types of cancer and cancer cell. Communicable diseases (Hepatitis, AIDS) STD, Immune Response, Vaccines and antisera allergies.Smoking, alcoholism and drug addiction,symptoms and control.Wild conservation.

Pesticides - Uses, advantages and hazards.

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Physiotherapist

1- Introduction of
physiotherapy 2- Anatomy

3- Physiology
4- Elemental nursing
5-Elemental biochemistry. Pathology and microbiology 6-
Hygiene and sanitation
7- Nutrition and sanitation
8- Biomedical wastemanagement
9- First aid
10- Disaster management
11- Anatomy and physiology as relevant to physiotherapy
12- Medical and surgical nursing
13-Elementary harmacology

14-Human relations

15- Community health nursing and communicable
diseases 16-Equipment management

17- Pathology

18-Orthopedics

19-Massage manipulation exercise and physical drill and yoga

20- Management of medical and surgicalemergencies

21-Pharmacology

22-Medical subjects

23-Elementary physics and minor crafts 8- Physics of heat and heat therapy

24-Physics of light and light therapy

25-Physics of electricity and electro therapy
26- Hydrotherapy

27-Occupational therapy

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Basic sciences

Applied Anatomy & Physiology of all malignant Tumors of the human body.

Oral Cavity, Pharynx, Larynx, Oesophagus, G.I. Geneto urinary system, Respiratory systems.

The pathology of the tumors.

1. Radiotherapy Machines:

Superficial X-Ray therapy, orthovopltage, therapy or Deep X- Ray therapy, Mega voltage therapy Van De graph Genetor, Linear Accelerator, Betatron Cyclotron, Machines, using Radio nuclides, Cobalt-60 units, Caesium- 137 Units Source Housing Beam Collimation and Penumbra.

2.Radio effects of ionizing radiation & Radiation Protection Cell and its Constituents, Effects of radiation of cells, Cell Cervical Curves somatic effects, hereditary effects of Radiation in Man. Operational Limits, Dose Limits for Radiation Workers, Dose Limits to members of Public, Personal Monitoring Film Badge, Radiation Hazard evaluation and control, Time, Distance and shielding, Planning of Teletherapy and Brach therapy Facility. Radiation Emergencies and Preparedness Radiation Safety during source transfer Units, National Regulatory Requirements for Radiotherapy equipment radiation Protection Survey.

3.Treatment Planning: Absorbed Dose, Depth Dose Distribution, Percentage Depth Dose, Initial Dos buildup, issue Air Ratio, Back Scatter factor, Scatter air radio, Isodose, charts field size, wedge filters, Combination of Radiation fields Parallel opposed fields, Multiple fields, SSD Technique, SAD Technique wedge field Techniques, Uniform Dose Distribution, Tumour Dose, specification, Target volume, Treatment volume, Rotation Therapy, ARC therapy, Tissue compensators, design of Compensators, Compensators wedges, Patient positioning simulation Procedure, Treatment setup, Field Blocks & Field shaping as a function of Photon energy, skin sparing at oblique incidence, separation of adjacent fields, Electron Beam Therapy.

4)Nuclear medicine: Radio Nuclides in Nuclear Medicine Production of short lived radio nuclides, nuclear medicine isotopes used in viva & Vitro tests, decontamination procedures, scintillation camera, scanners and uptake studies, Program and other Gamma Camera ionizing imaging procedures, Hand & foot detectors. Flame hard and isotope waste wet & dry disposal procedures. Preparation for labeling and tragedy of isotopes in imaging.

RADIATION PHYSICS

1) Structure of matter:

The Atom, the nucleus, elemental particles, Atomic Mass and energy units, extra nuclear structure, molecular structure and Bonds, Atomic Energy Levels, Nuclear Energy levels, Electro magnetic Radiation, Quantum Nature of Radiation. The Electro magnetic Spectrum, Radiation Energy, Particle Radiation.

2)The Fundamentals of Nuclear physics: Natural & Artificial Radio- Activity, Exponential Decay, and activity. The Half life and Radio Active Series, Growth of Radio Active Daughter (Equilibrium) Modes of Radioactive Decay, Alpha Decay, Beta decay, Internal conversion Isomeric Transition, Nuclear Reaction, The (Alpha, P) (Alpha, N) Reactions, Proton, Bombardment photo Disintegration, Fission, Fusion, Activation of Nucloides.

3)Production of X- Rays: The X- Ray Tube: - Anode, Cathode, Basic X- Ray, Circuit, Voltage rectification Diagnostic X- ray tube, The Ray X- ray tube physics of X- rays production, Bremasstrahlung Characteristics X-ray: Operating characteristics of X- ray tubes (ratings), KVP, MAS cooling time Modern, X-Ray tubes. Focal spot rotating Anodes, X- Ray tube housing special purpose, X- ray tubes, X- Ray timers, Calibration of timers- spinning top. Quality controls of an X- Ray installation.

4)Interaction of X- Rays & R- Ray with matter: Ionization, Beam, attenuation, Half value layer, Linear attenuation co- efficient Mass attenuation co- efficient photoelectric adsorption, Compton Absorption and coherent shattering pair production stopping power of medium penetration of charged particles through matter.

5)The Radio logic Examination: The primary Radio logic image, Radiographic, Images Radiographic and Fluorescent screens, Image Amplifying systems, Radiographic film, Grids, Factors effecting the Radio logic Image, Characteristics curve of film, Dark room film, automatic film processors.

6)Radiation Quantities and Units: anode, X- ray housing special purpose X- Ray Tubes, X- ray timers, Activity, Kerma, Exposure, Absorbed Dose, Dose equivalent dose.

7)Principles of Radiation detection and Monitoring Devices: Using a generator, elution procedure with BARC MO- TC Generator, production of TC- 99 M., Localization Mechanisms, General Methodology of preparing Radio pharmaceutical, Quality control of Radio- Pharmaceutical, TC- 99 M. leveled radio Pharmaceutical, Radio- Iodine leveled Compounds, Compounds leveled with other Radio Nuclides statistics of Radio- Isotopes counting Resolving time and loss of counts, sodium iodide, as X- ray detector, ER- Ray, spectrometer, preamplifier, Amplifier, Pulse storage Data processing and display, Thyroid uptake probe, Rectilinear scanner, Gamma Camera, Collimator performance, Collimator detector sensitivity, Collimator properties, pin hole and multi channel collimators, Gamma Camera performance tests, Hines reference, Phantom and Bar Phantoms. Dynamic perfusion Scanning procedure of thyroid Brain, lung, Bone, Kidney, Liver, Spleen, Pancreas, and Myocardial imaging Radionuclide Therapy.

ए.एन.एम/ महिला बहुउद्देशीय स्वास्थ्य कार्यकर्ता
(भारतीय नर्सिंग कांउसिल निर्धारित पाठ्यक्रम)

i. Community health nursing

ii. Health Promotion

A. Nutrition

B. Human Body & Hygiene.

C. Environmental Sanitation

D. Mental Health

iii. Primary Health care nursing –I

A. Infection and immunization

B. Communicable Diseases.

C. Community health problems

D. Primary medical care

E. First aid and referral

iv. Child Health Nursing

v. Midwifery

vi. Health Center Management

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Anatomy and Physiology

Human Anatomy with special reference to special senses. Organs of special senses. Pany Orbit and ocular adnexa (lids & lacrimal system). Ocular muscles & cranial nerves. Gross anatomy of coats of eye ball (Cornea, Sclera Uvea, retina, lens & Vitreous).

Physiology of the Eye Ball:

Physiology of vision including colour vision. Ocular movements & Binocular Vision. Accommodation & convergence. Formation & circulation of aqueous & lacrimal fluids.

Physics & Optics:

Law of refraction & reflection spherical & cylindrical surfaces. Optical aberrations of ophthalmic glasses. Prisms (a) Nomenclature (b) Uses.

Microbiology:

Introduction to the various organisms responsible for ocular diseases (Bacteria, virus & fungi). Technique of conjunctival smears, cultures, scropings & staining (Gram's & KOH). Infections & its prevention-routes, cross infection antisepsis & asepsis.

Clinical Pathology:

Examination of urine – Gross albumin & sugar. Preparation & staining of blood slides for DLC and malarial parasite.

Pharmacy:

various methods of Administration of drugs in ophthalmic diseases. Preparation and dispensing of various ophthalmic drugs including fluorescence, Mercurochrome, sodium sulphacetamide, homatropine, atropine pilocarpine & antibiotic drops. various side reaction of common ophthalmic drugs & drug abses. Anaesthetics & Antibiotics and acetazolamide. Miotics & Mydriatics.

Vision Testing:

various components of vision, principles of testing for visual acuity.

Geometrical & Physiological Optics:

Optics of human eye and refractive errors. Myopia, hypermatropia & its correction. Aphakia its correction. Astigmatism, Prebyopia & its correction. Ophthalmic Lenses. Contact Lenser-uses and abuses. Checking of spectacles. Protective glasses & L.V.A.

Retinosopy & Subjective Testing:

Visual Fields:

Common Eye Diseases:

Types of conjunctivitis including trachoma. Corneal ulcers & opacities. Iritis & cataract. Lids & lacrimal sac. And eye emergencies. Chemical & radiotional injuries including prevention, first aid & treatment. Mechanical injuries, prevention first & treatment.

Glaucoma:

Squint:

Systemic Disorders:

Diabetes & hypertension.

Nursing care of Ophthalmic Patients:

Ophthalmic Instruments:

Ocular Surgery, Fundamentals of Asepsis Technique:

Ophthalmic Dianosis Equipment (Maintenance):

Minor Surgical Procedures:

Emergency Resuscitation: General & Ophthalmic.

Medical Records: Diseases index, alphabetic index, and numerical index major & minor surgical records.

Health Education:

National Plan for Control of Blindness. Screening of School children for eye problems. Survey methodology. Rehabilitation of blind & vocational training for blind. Role of Ophthalmic Assistants in eye camps.

Training at Mobile Ophthalmic Unit, Organization of Eye camps. Publicity technique. Arrangements of OPD at camps. Arrangements of refradition of camps. Arrangements operation theatre at camps. Arrangements of wards at camps. Arrangements of sanitation and illumination at camp. Arrangements of catering at camps. Arrangements of exhibition at camp. Public relation with voluntary organization. Interaction with volunteer. Health education – General & Ophthalmic. Survey in Schools & Sub-health Centres.

Pre-operative preparation of patient in camp. Anaesthesia & Akinesia. Dispensing & Preparation of drops. Eye dressing & bandaging including preparation of dressing trolley. Role of Ophthalmic Assistant in O.T. Sterilization, carbolization & Fumigation. Follow up instructions to patients & follow up visit. Eye Health education.

Ocular Emergencies :

Injuries of the eye including F.B.'s. Acute glaucoma. Causes of sudden blindness.

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PHARMACEUTICS

Introduction to different dosage forms, their classification with examples—their relative applications. Familiarization with new drug delivery systems. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia. Size reduction, Size separation, Metrology—system of weights and measures. Calculations including conversion from one to another system. Percentage calculations and adjustment of products. Use of alligation method in calculations. Isotonic solutions. Mixing and homogenization. Packaging of pharmaceuticals Extraction and galenicals, Clarification and filtration, Heat processes, Introduction to drying processes, Distillation, Sterilization—concept of sterilization and its differences from disinfection—thermal resistance of microorganisms. Detailed study different sterilization processes. Study of immunological products like sera, vaccines, toxoids and their preparations., Processing of tablets, Processing of capsules

PHARMACEUTICAL CHEMISTRY

Acids, bases and buffers, Gastrointestinal agents, Acidifying agents, Antacids, Protectives and adsorbents, Saline cathartics. Antioxidants, Topical agents — (i) Protectives (ii) Antimicrobials and astringents (iii) Sulphur and its compounds (iv) Astringents—alum and zinc sulphate. Dental product, Inhalants, Respiratory stimulants, Expectorants and emetics, Antidotes. Major intra and extracellular electrolytes, Inorganic official compounds of iron, iodine and calcium; ferrous sulfate and calcium gluconate. Radio pharmaceuticals and contrast media radioactivity, Identification tests for cations and anions as per Indian Pharmacopoeia. Quality control of drugs and pharmaceuticals

PHARMACOGNOSY

Definition, history and scope of pharmacognosy including indigenous system of medicine. Various systems of classification of drugs of natural origin. Adulteration and drug evaluation; significance of pharmacopoeial standards. therapeutic effects and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins. Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of (a) Laxatives (b) Cardiotonics (c) Carminatives & G.I. regulators catechu. hyoscyamus, belladonna, aconite, ashwagandha, ephedra, opium, cannabis, nux vomica. rauwolfia. vasaka, tolu balsam, tulsi. guggal, colchicum, vinca. chaulmoogra oil. pterocarpus, gymnema sylvestro. gokhru, punarnava. ipecacuanha. benzoin, myrrh, neem, curcuma. cinchona. ergot. shark liver oil and amla. papaya, diastase, yeast. Collection and preparation of crude drugs from the market as exemplified by ergot, opium, rauwolfia, digitalis, senna. Study of source, preparation and identification of fibres used in sutures and surgical dressings—cotton, silk, wool and regenerated fibres.

BIOCHEMISTRY AND CLINICAL PATHOLOGY

Introduction to biochemistry. Brief chemistry and role of carbohydrates, proteins , lipids, their classification and related diseases. Role of minerals and water in life processes. Brief chemistry and role of vitamins and coenzymes. brief concept of enzymatic, Introduction to pathology of blood and urine.

HUMAN ANATOMY AND PHYSIOLOGY

Definition of various terms used in anatomy, physiology, Structure of cell, unction of its components with special reference to mitochondria and microsomes. Elementary tissues of the body,

Composition of blood, blood group and coagulation of blood, Name and functions of lymph glands. Anatomy and physiology of different body systems in Brief .

HEALTH EDUCATION & COMMUNITY PHARMACY

Concept of health—definition, indicators of health, concept of disease, prevention of diseases. Environment and health. First aid—emergency treatment in shock, snake bite, burns, poisoning, heart disease, fractures and resuscitation methods. Elements of minor surgery and dressings. Fundamental principles of microbiology, organisms of common diseases. Non-communicable diseases—causative agents, prevention, care and control. Cancer, diabetes, blindness, cardiovascular diseases. Communicable disease—causative agents, modes of transmission and prevention. (a) Respiratory infections—chicken pox, measles, influenza, diptheria, whooping cough and tuberculosis. (b) Intestinal infections—poliomyelitis, hepatitis, cholera, typhoid, food poisoning, hookworm infection. (c) Arthropod borne infections—plague, malaria, filariasis. (d) Surface infections—rabies, trachoma, tetanus, leprosy. (e) Sexually transmitted diseases—syphilis, gonorrhoea, AIDS. Nutrition and health, vitamins and minerals. Demography and family planning, natural family planning methods, chemical methods, mechanical methods, hormonal, contraceptives, population problem of India. Epidemiology —I mmunity and immunisation, immunological products and their dose schedule. Principles of disease control and prevention, hospital acquired infection, prevention and control.

DISPENSING PHARMACY

Prescriptions : Reading and understanding of prescription; Incompatibilities in prescriptions, Posology: Dose and dosage of drugs, Dispensed Medications: (i) Powders (ii) Liquid oral dosage (b) Biphasic liquid dosage forms: • Suspensions • Emulsions (iii) Dental and cosmetic preparations: (iv) Semi-solid dosage forms: (a) Ointments (iv) emulsification. (v) Sterile dosage forms: (a) Parenteral dosage forms (b) Sterility testing, (c) Ophthalmic products— study of essential characteristics of different ophthalmic preparations.

PHARMACEUTICAL CHEMISTRY II

chemistry of pharmaceutical organic compounds covering their nomenclature, chemical structure, uses and the important physical and chemical properties. The stability and storage conditions and the different types of pharmaceutical formulations of the drugs.

Pharmacology and Toxicology

Introduction to pharmacology, scope of pharmacology. Routes of administration of drugs, their advantages and disadvantages. Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs. General mechanism of drugs action and the factors which modify drugs action. Pharmacological classification of drugs. (i) Drugs acting on the central nervous system: (a) General anaesthetics, intravenous anesthetics. (b) Analgesic, antipyritic, sedatives and hypnotics, anti-convulsants, (ii) Local anaesthetics. (iii) Drugs acting on autonomic nervous system. (iv) Drugs acting one eye, (v) Drugs acting on respiratory system (vi) Antacids, (vii) Cardiovascular drugs, (viii) Drugs acting on the blood and blood forming organs. (ix) Drugs affecting renal function (x) Hormones and hormone antagonists (xi) Drugs acting on digestive system

Pharmaceutical Jurisprudence

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APPLIED ANOTOMY & PHYSIOLOGY

Study of the structure of a cell. - Normal anatomical Structure, Histology and Functions, (Physiology) of the all Human Body Systems,

BIOCHEMISTRY

Biochemical structure of the Carbohydrates Proteins, Lipids Enzymes
Clinicial Biochemistry - Kidney function tests, Liver function Test, Cardiac Profile, Lipid Profile

HEMATOLOGY

Composition of blood, collection of blood and anticoagulants, Hb estimation, TRBC count - ANAEMIAS, Preparation & staining of blood films, Leukopoiesis), TWBC & DWBC Count, Absolute values, ESR, PCV, Reticulocyte count, Platelet count, BT & CT
LE cell preparation, Sickling test, Osmotic fragility Bone Marrow Examination.

BLOOD BANKING

Blood Groups, Cross Matching, Coomb's test, Donor Screening, Blood Transfusion, & transfusion reactions, Blood Components

CLINICIAL PATHOLOGY

Physical chemical & microscopic examination of urine, stool examination, Semen examination, CSF exam.

PARASITOLOGY

Parasites in Blood, stool & urine

MICROBIOLOGY

Morphology of Bacteria, Culture and isolation of bacteria, Gram positive and gram negative cocci and bacilli, Anaerobic spore bearing bacilli.

SEROLOGY

Antigen & Antibodies, Diagnosis of syphilis - VDRL & RA test., Widal test, ELISA test.

HISTOLOGY

Fixatives, Tissue processing, impregnation, Block making, Section Cutting, Basic staining of sections, Collection of tissues for histology, Method of Decalcification.

CYTOLOGY

Techniques & equipments required, Fixatives and staining procedure

SYLLABUS
RADIOGRAPHER/ X-Ray TECHNICIAN/DARK ROOM Assitant

Anatomy and Physiology of Human Body

Introduction to the body as a whole. The cells, Tissues, Epithelium: **Simple**: **Compound, Connective Tissues, Muscles, Cell regeneration, Membranes:** mucous, serous, synovial Osteology (including whole skeleton, bones and joints) Development of bone (osteogenesis): cells involved Types and function of bone, Types of joints and various movement. **Axial Skeleton: Skull, Vertebral Column, Appendicular skeleton, Healing of bones.The respiratory system: Organs, Functions, Pharynx Larynx – Functions, lungs:** lobes, lobules, pleura.

Radiographic, Photography

Photographic process, Photographic emulsions, Film materials in x-ray department. History, structure of an x-ray film, single sided films, types of films**,** Spectral sensitivity of film material, graininess of film material, speed and contrast of photographic material**, Sensitometry:** photographic density, characteristic curve features of the characteristic curve**, The storage of film materials and radiograph:** Storage of unprocessed films, storing of radiographs**, Intensifying screens and cassettes. Luminescence:** fluorescence and phosphorescence. Construction of an intensifying screen**,** The fluorescent materials. Types of intensifying screens. Intensification factor. The influence of KV, scattered radiation. Detail, sharpness and speed, size of the crystals, reciprocity failure**,** Cassette design, care of cassettes, mounting of intensifying screens**,** Care of intensifying screens, tests to check screen film contact and light leakage**, Film processing:** Development: The nature of development, manual, automatic. The PH scale**,** The constitution of developing solutions and properties of development chemicals**,** The development time, factors in the use of a developer. Developers in processing systems**, Film processing:** fixing and role of a fixing solution. Constitution of the fixing solutions and properties of the Constituents**,** Fixers used in automatic processors. Factors affecting the use of the fixer**,** Regeneration of fixing solution. Silver recovery and its various methods**,** Rinsing, washing and drying. Objects of rinsing and washing, methods employed. Methods of drying films**,** Preparation of solutions and making stock solution**, Processing equipment: , Dark room: , Systems for daylight film handling , The radiographic image ,** Unsharpness in the radiographic image. Various factors contributing towards unsharpness**,** The presentation of the Radiograph. Identification markers and orientation. Documentary preparation**, Viewing accessories,** Light images and their recording**, Fluorography: , Subtraction: ,** Common film faults due to manufacturing as well as due to chemical processing**,** Management of the quality of the Radiographic image.

ELEMENTARY RADIATION PHYSICS

Structure of matter and principles of machines, electricity and electromagnetism applied in radiological instruments. Physics principles in design and working of x-ray tube technology. Construction and working principles of transformers and autotransformers used in x-ray circuits. Measurement of voltage special KV meters. Measurement of tube current in milli and microamperes. Principles of thermionic emission and rectification in x-ray technology. High voltage D.C. circuits in imaging and therapy tube circuits. Electrical hazards and safety x-ray tube rating in imaging and therapy x-ray tubes and thermal safety. Introduction to intensity of radiation in general and its variation by distance. Introduction to eletroma-genetic spectrum, definition of wavelength and its quantum relationship with peak kilovoltage. Physical principles of radiation and optical field coverage and the factor affecting the field projected on patient during x-ray imaging and radiotherapy exponential and trigonometric functions used in radiological calculations.

Radiography Techniques

Skeletal system: Radiography techniques for x-ray of: (a) Upper limb with special reference to joint. (b) Lower limb which includes all the bones with special reference to joint. femur and metatarsals, etc. (c) Shoulder girdle and thorax. (d) Vertebral column with special techniques for cervical spine, intervertebral joints and formina. Limbo-sacral joint. (e) Pelvic girdle and hip region. (f) Respiratory

system chest radiography for both the lungs, apical, lordotic and oblique views, techniques to decubitus AP and lateral views.

Anatomy and Physiology of Human Body :

Types of cells, tissues, bones and joints. Introduction to system and cavities of the body. Heart and Blood vessels, The Lymphatic System: The Digestive System:, The Urinary System:, The Reproductive System: Male & Female Reproductive system:, The Endocrine System:, **The Organs of Sense:**

RADIATION PHYSICS INCLUDING RADIATION PROTECTION

Atomic structure as applied to generation of x-rays and radioactivity spectrum of diagnostic imaging and therapy x-rays. Effects of variation of tube voltage, current, filtration, HT waveform and target material on x-ray production. Laws of radioactivity and decay schemes of different alpha, beta, gamma ray, negatron and position emitters as used in medicine especially in radiotherapy. Artificial radionuclide generators employed in medicine in general and radiotherapy sources in particular. Interaction of radiation with matter attenuation absorption and scattering phenomena. Photoelectric absorption, Compton scattering, pair production and annihilation process, ionisation, effects of geometry of thickness of the absorber. Dependence on the nature and atomic number of the absorber and on radiation quality. Transmission of x-ray through body tissues. Linear energy transfer. Range of secondary electrons and electron build up. Relative amounts of scatter from homogeneous and heterogeneous beam during the passage through a patient. Physical requirements of beam defining devices e.g. cones, diaphragm, collimators etc. Units of radiation measurement specification of quality and half-valve thickness (HVT) and its measurements, filters and filtration. Measurements of radiation and dosimetric procedures. Radiation detectors and their principles of working. Definitions of Bragg-peak, percentage depth dose, and peak scatter factor, tissue air-ratio, tissue maximum ratios scatter air ratio, isodose curves and radiation penumbra of different beams. Wedge filters, scattering foils. Physics properties of phantoms, phantom materials, bonus and bolus substitutes. Factors used for treatment dose calculation method. Physical aspects of electron and neutron beam therapy.

Radiation Protection:

Definition of radiation hazards maximum permissible dose and annual limit of intake (ALI), permissible dose levels on and around sealed source housing and installation principles of radiation protection and MPD's of different ICRP rules, stochastic and non-stochastic effects. Importance of 'ALARA' physical principles of design and planning of radiation installation. Safe work practice in tele therapy and Brach therapy. Shielding materials, radiation surveys and personnel monitoring devices film badges. TLD badges, pocket dosimeters.

BASIC RADIOGRAPHIC TECHNIQUES

Skull: Radiography of cranial bones, cranium, sella turcica, orbit, optic foramina, superior orbital fissure and inferior orbital fissure. **Facial Bones:**. **Dental Radiography:**. **Abdomen:, Macro radiography:, Stereography:, Soft tissue techniques: , Operation theatre techniques:**

Radiography:- techniques including special procedures.

Ventriculography and encephalogrphy, Myelography, Angiogrphy

O.T. TECHNICIAN

1. Introduction to surgery and basic surgical procedures

2. Sterilization of equipment and O.T. (Aphasia, Antisepsis & Fumigation.) & O.T. hygiene.

3. Surgical infection in O.T. & prevention anti Microbial therapy.

4. Fluids & electrolytes & intra venous fluids & setting up of IV line & Eletransfuisa.

5. Shifting of O.T. patients (Pre & Post op.) Sp. trauma patients.

6. Various surgical instrument.

7. Maintenance & care of general & special surgical instruments & equipments.

8. Pre-Op requirements (case papers, Pt. identification, consent, pre-op instruments).

9. Positioning of patient for special surgical procedures.

10. Control of Hemorrhage & resusaration.

11. O.T. illumination.

12. Preparation of surgical field.

13. Assisting at operation & setting up of instrument trolley

(a) Gen. surgery.

(b) Uri. Surgery.

(c) Gastrointestinal surgery.

(d) Neurosurgery.

(e) Cardiovascular surgery.

(f) Orthopedic surgery.

(g) E.N.T surgery.

(h) Gynaelogical & Obstetric surgery.

14. Surgical sutures.

15. Collection of specimens

16. Dressing material & their application.

17. Waste disposal.

पुरूष स्टाफ नर्स/महिला स्टाफ नर्स/ नर्सिंग सिस्टर हेतु पाठ्यक्रम :-

1. ANATOMY AND PHYSIOLOGY

a- Structure and function of cell, tissue, Skeletal System, joints and muscles of body
b- Structure and function of various system of human body for exc. Nervous System Circulatory, Respirator System, Excretory system, Reproductive system, Endocrine system. And Digestive system of human body.
c- Sensory organs.

2. NUTRITION ANDBIOCHEMISTRY

a- Macro nutrient and Micro nutrient.
b- Cookery rules and Preservation of nutrients.
c- Role of nurse in nutrition programme

3. MICROBIOLOGY

a- Types of immunity
b- Immunization
c- Hyper sensitivity and auto Immunity
d- Control and Destruction of Microbes:-
- Sterilization
- Disinfection
- Chemotherapy and Antibiotics
- Pasteurization
- Medical and Surgical Asepsis
- Bio safety and Waste management

4. NURSING FOUNDATION

a- concept of health, nursing profession, hospital policy, nursing process, documentation, Recording, reporting health assessment, and meeting general and special need of patients .care of terminally ill patients.

5. PSYCHOLOGY

a- Personality development. Motivation and emotional process.
b- psychological assessment and mental health and hygiene.

6. COMMUNITY HEALTH NURSING

a- Health determinants, Epidemiology and nursing management of common communicable diseases and non-communicable diseases, population explosion and its control.
b- Health policy and planning, national health and family welfare programme, health agencies, role and responsibility of community health nurse

7. MEDICAL SURGICAL NURSING

a- Common sings, symptoms, and nursing management of medical and surgical systemic
b- disorders of human body.
c- nursing management of pre and post-operative patients.
d- nursing management of communicable and non-communicable diseases

e- nursing management of patients in emergency and disaster situation.
f- nursing management of geriatric client
g- General clinical investigation
h- Oncology Nursing
i- Fluid and electrolytes balance and Imbalanced

8. CHILD HEALTH NURSING

a- modern concept of child health nursing, IMNCI, management of behavioral and social
b- problem of children, care of new born and new born resuscitation, KMC

9. MIDWIFERY AND OBSTETRICAL NURSING

a- concept of midwifery and obstetrical nursing.
b- assessment and management of antenatal, intra-natal, and postnatal period.
c- assessment and management of normal neonates' high-risk pregnancy, abnormal Labour.
d- Drugs used in obstetric nursing, Family welfare programme.

10. MENTAL HEALTH NURSING

a- Principals and concept of mental health nursing, Assessment of mental health nursing,
b- nursing management of client with psychotic and neurotic disorder, legal issue in mental health nursing.

11. NURSING RESEARCH AND STATISTICS

a- Research approach, design, sampling review of literature, and statistical analysis

12. MANAGEMENT OF NURSING SERVICES AND EDUCATION

a- skill of communication, inter personal relationship and human relation
b- Guidance and counselling, use of A V Aids, various method of class room and clinical
c- teaching, use of IEC material
d- Assessment of knowledge skill and attitude and OSCE
e- Management of nursing services in the hospital and community, in service education,
f- management of nursing institution and professional advancement, budget planning .

13. SOCIOLOGY

a- Relationship between individual and society
b- Social group, social changes, social control problems and different culture.
c- Population, family and marriage and types of community in India.

14. NURSING ADMINISTRATION AND WARD MANAGEMENT

a- Administration and management process
b- Administration of Hospital department, Units, Wards
c- Management of equipment supply
d- Cost and financing of Health care

Vital statistics

ECG Technician Course

1. Anatomy or Heart

- Structure of Myocytes
- Coronary Arteries Veins
- Nerves, Pericardium
- Relation or heart of thoracic structures/Mediastinum.

Physiology:

- Depolarization/Depolarization
- Conic charges – Influx and Efflux of NaT,KT.
- Calcium in Sarcoplasmic Reticulum.
- Properties- Automaticity, Refractory period etc.
- Normal ECG pattern and Recording.
- Physiological charges in ECG9

Pharmacology :

- Cardiac Drugs
- Effect of drugs on ECG charges.
- Toxicity of Drugs and ECG charges.

Clinical Cardiology :

- Recording of ECG
- Recording of various leads/modifications under different clinical conditions.
- Recording at different speed/Amplitude.
- Recording on single channel machine multi channel machine with analysis.
- Basic interpretation of Myocardial infarction, Arrhythmia/ Hypertrophy/ Effect of Drugs.
- Reporting of ECG and ECG changes which need immediate attention/ intervention

Orthopaedic Technician Course

Orthopaedics and traumatology

1. Fractures and Dislocation:
   Definition, fractures healing, types of fractures, General principles of treatment, Common fractures of upper and lower extremities.
2. General principles of Operative procedures and Orthopaedic appliances.
3. Management of acutely injured:
   First aid, ransport, resuscitation methods.
4. Operation room techniques:
   Reception of patients in OT premises, scrubbing, dressing, tourniquet and it's application, growing. painting and draping,
   OT fumigation and UV lights,
   OT table and attachments, autoclaving
5. Preparation for Anaesthesia:
   Reception of patient,
   shifting,
   positioning for anaesthesia,
   check out procedure.
6. Sterilisation:
   Defination, classification of sterilizing agents, physical methods of sterilization, importance of sterilization.
7. Maintenance of equipments in Operation Theatre:
   Surgical diathermy,
   suction machine,
   OT table, various lightening systems fumigation.
8. Orthopaedic Instruments:
   Handling and care.
9. Sutures:
   Absorbable: Surgical Catgut, collagen sutures, sy6nthetic absorbable utures etc.
   Nonabsorabable: Silks, Cotton, Plyamide, Polypropylene, stainless steel etc.
10. Plaster and plaster techniques:
    History of plaster of Paris,
    properties of plaster of Paris,
    Preparation of plaster of Paris bandages,
    different types of slabs and casts,
    correct method of Appling slabs and casts,
    special plaster –FCB, PTB etc.
    plaster removal,
    plaster cutter and associated instruments.
11. Dressing and Dressing room techniques:
    introduction: general environment of cleanliness.
    Dressing table and trolley, drums: preparation contents and maintenance, dressing material: types, preparation, use and sterilization.

Different types of solutions used for dressing viz hydrogen peroxide, providing iodine etc.
Medicated dressings viz Sofratulley, collagen etc.
Basic principles of bandaging.

12. Fundamentals of Nursing:
Definition,
Introduction: general environment and cleanliness.
Proper disposal of ward waste,
Beds: bed making, posturing in bed, special beds viz pneumatic, waterbeds.
Hygienic care: care of skin, care of hairs and nails, oral hygiene, care of pressure points. Exercise and activity: Principles of good posturing and body behaviour, moving and lifing patient, posture changes assisting patient in attaining ambulatory status.
Promoting urinary and intestinal climinations: offering urinal, bedpan. observations of urine and faeces. Maintaining nutrition.
Maintaining fluid and electrolyte balance.
Maintenance of input/output records.
Oral intake measures.

SpeechTherapist

Normal aspects of speech, language and communication :

1. **History and development of the profession of speech – language pathology.**
   - Major work activities of SLP.
   - Various settings of service delivery.
   - Other professions concerned with communication disorders.
2. **Human Communication**
   - Defination and components.
   - Distinctions and similarities between communication, speech and language.
   - Speech chain.
   - Functions of Communication, speech and language
   - Modes of communication.
   - Characteristics of good speech.
3. **The Physical mechanism of speech and language production.**
   - Anatomy and Physiology of respiratory system.
   - Respiration for life and speech.
   - Anatomy and physiology of laryngeal system.
   - Bases of pitch and loudness change mechanism.
   - Anatomy and physiology of articulatory system
   - Anatomy of the nervous system related to speech and language.
   - Speech as an overlaid function.
4. **Acoustic aspect of speech**
   - Source filter theory of speech production.
   - Harmonics, formants, transients and aperiodic energy.
   - Acoustic characteristics of normal voice and prosody.
5. **Interactive bases of human communication**
   - Social bases.
   - Cognitive bases.
   - Psychological bases.
6. **Normal development of communication**
   - Development of communicative intent.
   - Development of voice.
   - Development of Phonology.
   - Development of Semantics.
   - Development of Syntax.
   - Development Pragmatics.

     Prerequisties for language and speech development.
     Factors affecting language and speech development.
     Theories of language acquisition – Innate Vs Acquired – a brief introduction
     Models of speech production.
     Stages of language and speech development.
     Speech and language skills of infants, toddlers, pre-schoolers, school-going children and adolescents.

Speech and language disorder

1. **Definitions, cause and characteristics of :**
   a. Developmental language disorder
   b. Articulation disorders
   c. Fluency disorders
   d. Voice disorders
   e. Cerebral palsy
   f. Cleft lip and palate
   g. Aphasia
   h. Learning disability
2. **General principles of assessment and intervention**

   Definitions and goals of assessment and intervention.
   Basic procedures in assessment and intervention (interview, informal and formal procedures).
   Report writing and counselling – an introduction.
   Informal assessment of pre-requisites for language oral peripheral mechanism, child directed speech.

Refrctionist & Optometrist Syllabus

Anatomy of eye
Physiology of eye

- General consideration of different terms used in ophthalmology.
- Common diseases of eyelids
- Common diseases of conjunctiva
- Common diseases of sclera Common diseases of iris & ciliary body
- Glaucoma Cataract
- Orbit
- Examination of eye
- Special investigation of eye
- Demonstrations – on above subjects.
- Visualaquity
- amplitude of accommodation
- Colour vision
- Principle of Radioscopy
- Static refraction
- Errors of refraction
- Myopia
- Hypermetropia
- Astigmatism
- Apahna
- Presbyopia
- Anisometropia
- Anisokomia.
- Physical optic
- Properties of light.
- Principal of reflection
- Principal of refractions
- Lenses and their combinations
- Len some try
- Keratometry
- Contact lenses
- Indications
- Types
- Uses
- Practice – Low vision aids.

Dialysis Technician Syllabus

1. Structure and function of Kidney (Anatomy & Physiology)
2. Introduction of renal diseases.
3. Renal failure – Acute Chronic and immediate management.
4. History of dialysis.
5. Principles and types of dialysis.
6. Vascular access for dialysis.
7. Anticoagulation : Principles and problems.
8. Haemodialysis Machine : Working Principles and maintenance.
9. Water Treatment Plant: Working Principles and maintenance.
10. Complication and management of complication during dialysis.
11. Assessment of adequacy of dialysis.
12. Reuse of dialysis.
13. Sterile techniques in dialysis.
14. Emergencies in dialysis.

Dental Mechanics Syllabus

1. **Year Dental Mechanic**

   Dental Materials Including Metallury :

   Composition, properties, uses, advantages, disadvantages of the following materials

   1. Plaster of paris
   2. Investment materials
   3. Impression materials
   4. Tray materials
   5. Denture base materials
   6. Waxes
   7. Dental cements

      Metallurgic terms

      General properties of metals

      Metals used in dentistry like gold, silver, zinc, lead, mercury, and titanium.

      Alloys used in dentistry like casting alloys, wrought gold, silver, stainless steel. Heat treatment done.

      Solders, Fluxes and anti fluxes

      Tarnis and corrosion

      Electrodeposition.

Applied Oral Anatomy :

- Elmentary anatomy of denture bearing area
- Human dentition and occlusion
- Muscles of mastication and facial expression
- Muscles of phonation
- Movements of temporomandibular joint
- Tooth carving

Dental Hygienist Syllabus

General Anatomy and Histology :

a. General structures of mucous membrane, Bone, Museles, Blood vessels, Lymphatic, Glands and nerves.
b. Blood supply, nerve supply and Lymphatic drainage of face in general and teeth associated structures in particular.
c. Elementary knowledge of development of the face and jaw.
d. Muscles of mastication and facial expression.
e. Tempero mandibular joint.
f. Course and distribution of 5.7 and 9 cranial nerves.
g. Dental anatomy and histology- Structures, nomenclature and development of human teeth.

General Physiology :

a. General Outlines of the Physiological process of the human body.
b. General outline of CVS, CNS and Endocrine glands, Special Senses.
c. Composition and function of saliva.
d. Mastication, Deglutition and phonation.
e. Blood-Structure-Function-Clotting mechanism.

General and Dental Pharmacology :

a. Brief description of Nomenclature.
b. Derivation, Dosage, Pharmacological action and therapeutic uses of drugs commonly used in destistry.
c. Analgesics, Antibiotics, Local Anesthetics, Coagulants and Anti-Coagulants and Vitamins.

General Pathology and Microbiology and Oral Pathology and Dental Anatomy and Histology.

a. General Principles of Pathology- Inflammation, Degeneration and repair.
b. Application of general principles of pathology of teeth and surrounding tissues.
c. Development of teeth and Histlology of enamel, Dentine, Pulp and Periodontal tissues.
d. Dental Anomalies.
e. Dental Nomenclature.
f. Attrition, Abrasion and Erosion.
g. Oral Manifestation of systemic diseases.
h. Vitamin Deficiencies and infectious deseases.
i. Neoplasm in general.
j. Elementary knowledge of Bacteriology, Infection and Immunity.
k. Sterilisation and Infection control.
l. Brief description of Pathology and Bacteriology of Dental caries, Gingival and Perodontal infections.

Dental Materials

a. General knowledge of various materials used in Dentistry and their manipulation.
b. Impression materials and model materials.
c. Dressing materials and various filling materials, Temporary and permanent.

OCCUPATIONAL THERAPIST

Thorax:

Ribs, Vertebrae, Intercostals space, intercostals nerve, pleural, reflection, outline of respiratory system as a whole. Medicastinal surface of lungs, Broncho-pulmonary segments, Mediastinum, Heart & Coronary vessels, Jonits of Thorax, Vertebral column & its applied anatomy.

Abdomen & Pelvis:

Lumbar vertebral, Sacrum, Bony Pelvis, Ant Abdominal wall, Inguinal canal & hernia, Testes, Scrotum, General outline of digestive system. Liver, gall bladder, kidney, uretger, Suprarenal glad, urinary bladder, prostate, urethra, male and female reproductive organs, joints and pelvis.

Superior Extremity:

Bones in detail Branchial Plexus including applied anatomy, Main muscle groupos and their actions, joints and their applied anatomy, Axillary lymphatic drainage of mammary gland venous drainage of upper limb.

Interior Extremity:

Bone in detail, lumber and sacral plexus, main nervesd and muscles. Arches of foot and its applied anatomy, Arterial anastomosis around knee joint venos drainage, Ingunal lymphodes joints & their applied anatomy.

Brain & Spinal Cord:

Connection & main functions of each part, internal capsule, and blood supply**.**

Surface Anatomy:

Bony landmarks and surface anatomy of important structures.

Human Physiology

1. Introdution
2. Tissues.
3. Cardio Vascular Systam
4. Respiratory system
5. Neuromuscular system
6. Digestive System
7. Genito Urinary Systam
8. Endocrine System
9. Temperature

Biochemistry mm 35

1. Biophysics
2. Cell
3. Carbohydrates
4. Lipids
5. Proteins
6. Nucleic Acids
7. Enzymes
8. Vitamins
9. Bio-Energetics
10. Carbohydrate Metabolism
11. Lipid Metabolism
12. Protein Metabolism
13. Water and Electrolytes
14. Mineral Metabolism
15. Nutrition
16. Connective Tissue
17. Nerve Tissue
18. Muscle Tissue
19. Hormones
20. Isotopes

Pathology & Bacteriology

- Pharmacology Section (B) 35
- General Psychology
- Principles of Occupational Therapy Theory

Anaesthesia Technician Syllabus

1. Prelimary knowledge of basic principles of anaesthesia equipments. (Gas pipeline system, oxygen cylinders, anaesthesia machine, various circuits tubes, vaporizers, moniters, ventilators.)
2. Basic knowledge of drugs commonly used in anaesthesia practice (in OT,ICU), resuscitation.
3. Cleaning & sterilization of the equipments used routinely.
4. To assist the anaesthesiologist in preparing the patient for anaesthesia. And intra and post-operative care fo the patient.
5. To assist the anaesthesiologist in ICU. (Care of the uncouncious patient)
6. To learn and assist the anaesthesiologist during CPCR.
7. Documentation of anaesthesia record.

Operation Theatre Technician Topics for Anaesthesia:

1. Introduction and types of anaesthesia.
2. General anaesthesia – anaesthetic gases and volatile anaesthesia agent.
3. Equipment for general anaesthesia – anaesthetic machine & other instrument preparation and arrangement.
4. Drugs used for pre-operative, intra operative and post-operative medication.
5. Arrangement drugs and other equipment in O.T.
6. Regional Anaesthesia – spinal, epidural, nerve & plexus blocks.
7. Preparation and arrangement for regional anaesthesia.
8. Clinical observation and identification of sign and symptoms of shock, allergic rerductions respiratory distress & assistance in other emergency conditions.
9. Requirements and assistance in conduct of anaesthesia intensive therapy unit and resuscitation.
10. Intravenous infusion solutions and blood transfusion therapy.
11. Pre- operative check- up, and preparation of patient for anaesthesia.
12. Post –operative observation and care of patient.
13. Maintenance, care and sterilization of anaesthesia equipments.
14. Care, maintenance and use of monitoring equipment used in anaesthesia.
15. Record kepping and maintenance of record of drugs and patient anaesthesia record .

Dental Technician

1. **Dental Anatomy and terminology**
   - A study of anatomy and terminology related to construction of dental applications.
2. **Complete Dentures**
   - Overview of complete denture construction.
   - Anatomy and physiology of the mouth and associated structures.
   - Artificial teeth for complete dentures.
3. **Partial Dentures**
   - Principles and major component parts for removable partial dentures .
   - Partially edentulous classification ,principles of survey and design, cast design, contour soldering, tooth arrangement and wax-up, process and finishing.
4. **Tooth Morphology**
   - An introduction to tooth morphology and element of occlusion.
5. **Dental Material**
   - Physical and chemical properties of materials used in dental appliance construction.
   - Testing and comparisons of dental materials.
6. **Fixed Prosthodontics**
   - The last wax method of constructing fixed dental restorations.
   - Occluding metal crowns will be constructed on models of articulated posterior dentitions.
   - Metal crowns, pontics.
7. **Complete Dentures Construction**
   - Complete dentures and post-processing occlusal refinement.
8. **Partial Denture Construction**
   - The study and construction of removable orthodontics.
   - Contouring of wires to complete various techniques in anchorage, retention and tooth movement.
   - Removable cast partial frameworks.
   - Prescriptions, principles of design, spruing techniques.
   - Processing in cold cure, pour and heat cure techniques.
9. **Fixed Prosthodontics**
   - Stress directing attachments in fixed partial dentures.
   - Designing metal structures for ceramomental restorations.
   - Dental porcelains and aesthetic restorations.
   - Dental porcelains and ceramomental techniques, maxilloficial appliances.

PROSTHETIC AND ORTHOTIC TECHNICIAN

Prosthetics (Upper Extremity)

(i) Classification by level of amputation. (ii) Medical consideration applied anatomy and pathological consideration (iii) Classification of congenital skeletal limb deficiencies (iv) Prosthetic prescription (v) Amputee trainee (i) Components of upper extremity prostheses, control & harness systems. (ii) Fabrication principle & procedures for upper extremity prostheses (iii) Measurement fitting & alignment (iv) Check-out & care of B.E. prostheses.

(v) Bio-mechanics of U.E. prostheses. (vi) Harness & control systems Below Elbow harnessing & this causes, shoulder amputee harnessing (vii) Clinical aspects of U.E. prosthesis (viii) Training in the use of U.E. prosthesis (ix) Electro-mechanical myoelectric and other externally powered prostheses (x) Study of publication sources for updating information on upper limb prostheses

Prosthetics (Lower Extremity)

1. **Medical Subjects (i) Levels of amputation & limiting factor (lower extremity)**
   (ii) Psychological aspects of amputation (iii) Classification of congenital skeletal limb deficiencies.
   (iv) Prosthetic / Orthotic assessment and evaluation techniques (v) Prosthetic prescription (vi) Immediate & early Prosthetic management
2. **Technical (i) Prosthetic components below knee & above knee (ii) Examination of stump, measurement, cast taking POP modification, fabrication, alignment & fitting procedures for below knee & above knee amputations (this include prosthesis for partial foot, choparts, syme's below knee, through knee above knee amputations**
   (iii) Gait analysis of BK/ AK amputees fitted with prostheses. (iv) Check out of below knee & above knee prosthesis (v) Maintenance & care of prosthesis vi) Hip disarticulation & Hemipelvectomy prosthesis (vii) Bio-mechanics of below knee, above knee & hip disarticulation prosthesis (viii) Fluid controlled prosthesis (ix) Modular & other modern types of prosthesis

Orthotic (Upper Extremity)

1. **i. Functional anatomy of the hand**
   ii. **How to train the patients to use functional splint & arms braces.**
2. **Measurement, selection of materials & components, fabrication & fitting of the following:**
   (i) Static fingers hand splints. (ii) Functional hand splints (iii) Functional arm braces (iv)Feeders (v) Special assistive devices (vi) Myoelectric & other externally powered upper extremity orthoses
3. **Biomechanics of functional hand splints and arm Orthosis**

Orthotic (Lower Extremity)

1. **Foot Orthoses**

Medical - (i) Anatomy of Foot (ii) Orthotic - Prescription for different pathological condition, pathomechanics of foot & ankles.

Technical- (i) Shoes, boots & their components (ii) Shoe modifications, principles & procedures in clinical application (iii) Biomechanics of the foot

2. **Ankle Foot Orthoses, K.O. KAFO, EKAFO, GIL, HKAFO-**

Medical - (i) Pathomechanics Lower extremity (including foot, ankle, knee and hip.) (ii) Introduction to Orthotic management (iii) Orthotic prescription (iv) The influence of error in bracing upon deformity of lower extremity (v) Gait training

Technical- (i) Lower extremity orthotic components & functions. (ii) Principles of taking measurements, selection of components, fabrication, alignment fitting and check-out of orthoses. (iii) Analysis of Pathological & orthotic gait (iv) Study of publications sources for up- to-date information on lower extremity Orthoses.

1. An Architecture for Physiological Function
    - Development, ultra structure and Anatomy of Respiratory tract and Lungs.
    - Embryology of lungs, heart, mediastinum and diaphragm.
    - Development anomalies
    - Surgical and endoscopic and applied Anatomy of chest and neck including Lymphatic drainage.
    - Radiographic Anatomy (plain skiagram, CT, MRI, Ultrasound etc.)
2. Physiological Principles
    - Control of Ventilation and role of peripheral and central Chemoreceptors & pulmonary mechanics.
    - Ventilation, pulmonary Blood Flow, Gas Exchange, Blood Gas Transport and assessment of pulmonary functions.
    - Non-respiratory immunological and endocrine functions of lung.
    - Inhalation kinetics and its implication in aerosol therapy, sputum induction etc.
    - Acid-base and electrolye balance.
3. Approach to the Patient with Respiratory signs and symptoms
    - Basic signs and symptoms of lung diseases
    - Pathogenesis, evaluation of dysnoea and abnormal breathing patterns.
    - Pulmonary manifestations of systemic diseases.
4. Diagnostic Procedures
    - Trache Bronchial Secretion/Transbronchial Aspirations
    - Bronchoscophy and related Procedures
    - Radiographic Evaluation of the Chest and Computer Tomography and MRI
    - Gram's stain, Zeihl-Neelsen stain for AFB, Fluorescent Microscopy, fungus Stain, Gomori stain for p. carini.
    - Immunological Tests including Mantoux.
    - Polymerase chain reaction, D. N. A. probe, Bactec tests.
    - Thoracocentesis, Biopsy FNAC/FNAB
    - Spirometry, ABG, Diffusion studies
5. Mycobacterial diseases of the Lungs
    - Epidemiology, Microbiology and Prevention of Tuberculosis
    - Pathogenesis of Pulmonary Tuberculosis and clinical Manifestations and diagnosis of Mycobacterial Disease
    - Diseases caused by Mycobacteria other than Mycobacterium Tuberculosis
    - Treatment of Mycobacterial Diseases of the Lungs caused by Mycobacterium Tuberculosis
    - RNTCP
    - Treatmetn of pulmonary tuberculosis in hepatic renal and endocrine disorders and in pregnancy.
    - Multidrug resistant tuberculosis

- AIDS & tuberculosis
- Chemoprephylaxes

6. Immunological Disorders

- Immune defenses of the lung and Cellular Communication in Respiration Immunity.
- Sarcoidosis
- Hypersensitivity Pneumonitis and Pulmonary Manifestations of Collagen Vascular Diseases.
- Eosinophilie Pneumonias and Tropical eosinophilia
- Granuloma like Wegener's, Churg Strauss etc.

7. Interstitial Diseases

- Reactions of the Interstitial Space to injury
- Pulmonary Fibrosis
- Occupatioonal and Environmental Pulmonary Diseases.

8. Non-infection disorders of the pulmonary Parenchyma

- Aspiration and inhalational (non-Occupational) Disease of the Lung
- Pulmonary Edema
- Drug induced pulmonary diseases

9. Pulmonary circulatory disorders

- Pulmonary Hypertension and Cor Pulmonale
- Pulmonary thromboembolic Disease.

10. Obstructive diseases of the lungs

- Asthma Epidemology, General Features, Pathogenesis, Pathophysiology and therapeutic modalities Chronic Obstructive Pulmonary Diseases.
- Immunotherapy
- Long term Oxygen therapy
- Inhalation therapy
- Cystic Fibrosis
- Pulmonary Rehabilitation
- Acute Brochrolitis and Bronchiolitis Obliteran
- Upper airway obstraction
- Broncholitis Obliterans organizing Pneumonia (BOOP)

11. Hypoventilation Syndromes and sleep disorders

- Disorders of Alveolar Ventalation
- Sleep Apnea Syndrome
- Obesity

12. Non - Tuberculosis Infections of the Lungs Generalaspects

- Approach to patient with PulmonaryInfections
- Nosocomal Pneumonia
- Systemic Infection and the Lungs

13. Non – Tuberculosis infections of the lungs specific disorders

- Pneumonias caused by Gram-Positive Bacteria, Gram Negative

Aerobic- Organisms and Anaerobic Organisms and Anaerobic infections of the Pleura

- Unusual Bacterial Pneumonia including viral or rickettsial
- Community Acquired Pneumonia
- Bronchectasis

14. Cancer of the lungs
    - Biology of the lung cancer, small cell and non small cell
    - Epidemiology, Pathology, Natural History and Clinical Picture of the Carcinoma of the Lung.
    - Diagnostic Approach of Pulmonary Nodules
    - Small Cell Lung Cancer
    - Medical Management and Surgical Treatment of Non-small Cell Lung Cancer and Parancoplastic syndrome
    - Radiation Therapy in the Management of the Carcinoma of the Lung
    - Benign and malignant Neoplasms of the Lung other than Bronchogenic Carcinoma and thymic and neuro fibromatous tumors, Neoplasms of the Pleura, Chest Wall and diaphragm
    - Prevention of Neoplasia
15. Diseases of the Mediastinum
    - Non-neoplastic disorders of the Mediastinum
    - Primary Neoplasms and cysts of the Mediastinum
16. Disorders of the Pleura
    - Pleural Dynamics and Effusions
    - Non neoplastic and Neoplastic Pleural Effusions
    - Pneumothorax
    - Pyothorax and Broncho-pleural; fistula
    - Pleural thickening, fibrosis and calcification
17. Acute Respiratory Failure
    - Acute Respiratory failure: Introduction and Overview
    - Adult Respiratory Distress Syndrome: Clinical Features, Pathogenesis, Sequential Morphological changes and Management
    - Acute Respiratory failure in the patient with Obstructive Airways Disease
    - Respiratory Muscles and clinical Implications of Respiratory Muscle Fatigue
    - Oxygen Therapy
    - Mechanical ventilation

SYllabus: Theory for Cardio Thoracic Technicain

1. General Human Anatomy & Physiology
2. Anatomy of Heart Lung blodd vessel.
3. Heart as pump & Cardiac Cycle.
4. Bloo, its components and Haemostatic.
5. Respiration, Gas Exchange & Diffusion.
6. Types of Oxygenators and some common oxygenators
7. Heat Exchange , Filters and Reservoirs,
8. Aortic and Arterial Cannulae,
9. Venous Cannulea and techniques.
10. Priming fluids, PCv.
11. Pharmacology of commonly used medicines lonotropes, antiarrythmies.
12. Technique of Cardiopulmonary Bypass
13. Cardioplegia, additives & techniques
14. Hypothermia, Circulatory arrest and Homescstiatic management
15. Conduction system of heart
16. E.C.G. and defibrillation.
17. Body response of Extra corporeal circulation and complication of Cardiopulmonary Bypass.
18. Excretory function and Acid base Balance.
19. Ultra filtration during cardiopulmonary Bypass.
20. Heart blocks and pacemaker.
21. Emergency during cardiopulmonary Bypass.
22. Rheumatic heart diseases pathology and surgery.
23. Ischemic Heart diseases (Pathology and surgical Management).
24. Acyanotic congenital Heart diseases (Pathology and Surgery)
25. Cyan tic congentital Heart diseases (Pathology and Sergery)
26. Perfusion Technology for minimally Invasive Cardiac Surgery.
27. Method of Sterilization.
28. Asepsis and Theatre technique The practical training is imparted in the following manner .

पाठ्यक्रम सहायक पशु चिकित्सा क्षेत्र अधिकारी

1. विषय– अस्थि एवं संधि (जोड़) विज्ञान।

1. प्राथमिक शरीर रचना।
2. कंकाल।
    1. अक्षीय कंकाल
    2. उपांगीय कंकाल
3. संधि विज्ञान जोड़ विज्ञान०।

2. विषय– स्पलेन्कनोलॉजी एवं एस्थिसियोलॉजी।

1. स्पलेन्कनोलॉजी
2. एस्थिसियोलॉजी

3. विषय– शरीर के विभिन्न तंत्रों का अध्ययन।

1. पशु की प्राथमिक शारीरिक संरचना।
2. प्राथमिक पाचन तंत्र।
3. प्राथमिक श्वसन तंत्र।
4. प्राथमिक उत्सर्जन तंत्र।
5. तंत्रिका तंत्र।

4. विषय–अतः स्त्रावी, प्रजनन, दुग्ध विषयक।

1. प्राथमिक अंतःस्त्रावी चि या विज्ञान।
2. प्रजनन तंत्र।
3. दुग्ध विषयक।
4. पशुओं की शरीर विकास प्रचि या एवं मौसम विज्ञान।

5. विषय–अंतः करण की चयापचय।

1. एन्जाइम।
2. कार्बोहाईडेर्ट्स का चयापचय।
3. वसा का चयापचय।
4. प्रोटीन का चयापचय।
5. विटामिन्स।

6. विषय– कार्बोहाईड्रेट्स, वसा, प्रोटीन एवं नाभिकीय अम्लों का अध्ययन।

1. कार्बोहाईडेर्ट्स का जीव रसायन।
2. लिपिड्स का जीव रसायन।
3. प्रोटीन का जीव रसायन।
4. नाभिकीय अम्ल का जीव रसायन।

7. विषय– साधारण पशु परजीवी विज्ञान और कृमि विज्ञान।।

1. सिद्धांत
2. सेस्टोड
3. नेमाटोड

8. विषय– पशु कीट विज्ञान, अकेरोलॉजी, एवं प्रोटोजुआलॉजी।

1. सिद्धांत

9. विषय– जीवाणु विज्ञान और फफूंदी विज्ञान का सामान्य परिचय।

1. सिद्धांत
2. प्रथम अध्याय
    1. सूक्ष्मजीव विज्ञान का परिदृश्य
    2. सूक्ष्मजीव विज्ञान का इतिहास
    3. सूक्ष्मदर्शी के प्रकार
3. द्वितीय अध्याय
    1. जीवणुओं की संरचना, गुण, बढ़ाने एवं पहचानने की विधियां।
4. तृतीय अध्याय
    1. जीवणुओं की संरचना, गुण, बढ़ाने एवं पहचानने की विधियां

10. विषय– शारीरिक जीवाणु और फफूंदी रोग।

1. सिद्धांत
2. जीवाणुजनित रोग
3. फफूंदीजनित रोग

11. विषय– सामान्य और शारीरिक विषाणु विज्ञान।

1. सिद्धांत
    1. विषाणुओं की संरचनायें
    2. विषाणुओं को बढ़ाने की विधियां
2. विषाणुजनित रोगों को जांचने की प्रयोगशाला विधियां

12. विषय– जनरल पशु रोग विज्ञान।

13. विषय– विशेष पैथालॉजी।

14. विषय– क्लीनिकल पैथालॉजी।

15. विषय– पशु पोषण के भूलभूत सिद्धांत।

1. पशुओं के स्वास्थ्य व उत्पादकता में पोषक तत्वों का महत्व।
2. पोषण में उपयोग होने वाली विभिन्न शब्दावी एवं उनकी परिभाषाएँ।

3. पशु चारे व दाने की उपलब्धता, महत्व तथा खाद्य पदार्थों का वर्गीकरण।

4. रोमान्थी एव अरौमान्थी पशुओं में पोषक तत्वों का पाचन।

16. विषय– प्रौद्योगिकी।

1. निम्न स्तर के चारों का भौतिक व रसायनिक विधियों द्वारा उपचार कर पोषक तत्वों को बढ़ाना।

2. दाने काप्रसंस्करण।

3. पशुओं के खाद्य पदार्थों के भंडारण के लिए तैयार करना।

4. हरे चारे का हे व साइलेज बनाकर संरक्षित करना।

5. पशुओं के दाने व चारे में पाए जाने वाले हानिकारक तत्वों एवं सामान्य मिलावटों के बारे में जानकारी।

6. पशुओं व पक्षियों के लिए फीड एडिटिव का उपयोग।

17. विषय– रौमान्थी पोषण

1. पशुओं की वैज्ञानिक आहार पद्धति का महत्व।

2. खाद्य मानकों का उपयोग तथा महत्व। संतुलित आहार एवं उनकी विशेषताएँ।

3. आहार गणना के सामान्य सिद्धांत।

4. गाय–भैंसों की विभिन्न अवस्थाओं जैसे वृद्धि, परिपक्व, गाभिन, दुग्धावस्था तथा सूखी शुष्क अवस्था के लिए आहार निर्धारण।

5. भेड़ एवं बकरी की शरीर वृद्धि एवं उत्पादन की विभिन्न अवस्थाओं जैसे दूध, मांस, इ न आदि के लिए आहार निर्धारण।

6. नानप्रोटिन नाइर्टोजिन तत्वों का रूमान्थी पशुओं में उपयोग।

18. विषय– अरौमान्थी पोषण

1. मुर्गियों, सूकरों, घोड़ों के लिए आहार मानक।

2. मुर्गियों, सूकरों व घोड़ों की विभिन्न शारीरिक अवस्थाओं के दौरान उनका भरण पोषण।

3. फीड सप्लीमेंट।

19. विषय– पशु प्रजनन

1. आनुवाशिकी परिचय– जीन– फीनोटाइप और जीनोटाइप, समरूप और विषमरूप, पशुओं में गुणसूत्र संख्या, शब्दावली, मेंडेल के नियम, पशुओं और मुर्गियों में लिंग निर्धारण, जैनेटिक विविधता।

2. घरेलू जानवरों की मूल विशेषताएँ।

3. पशुओं और मुर्गियों के आर्थिक गुण और उनके महत्व।

4. पशु चुनावः उत्तर चयन Response to Selection९ और इस प्रभावित करने वाले कारक।

5. पशु सुधार प्रणाली और चयन के तरीके।

6. शुद्ध ब्रीडिंग : अतः प्रजनन पद्धति करीब प्रजनन और अंतर वंश प्रजनन, अतः प्रजनन पद्धति के जेनेटिक प्रभाव, फायदे और नुकसान।

7. संकर प्रजननः पशुधन प्रक्षेत्रों में रखे जाने वाले पशुओं में संकर प्रजननन का प्रभाव, आनुवांशिक प्रभाव, फीनोटिपिक प्रभाव, भिन्नश्रय Herosis० और संकर शक्ति Hybrid vigour० संकर प्रजनन से लाभ, श्रेणी उन्नयन Grading Up०।
8. राज्य में पशुओं और मुर्गियों हेतु चल रहे वर्तमान प्रजनन कार्यक्रम।

20. विषय– पशुओं के रखरखाव का सामान्य अध्ययन।

1. भारत वर्ष में पशुधन का महत्व।
2. पालतू पशुओं का वर्गीकरण।
3. पशु उत्पादन में उपयोग की जाने वाली सामान्य शब्दावली।
4. भारतीय मानचित्र पर गाय, भैंस, बकरी एवं भेंड़ की प्रजातियों की जानकारी।
5. गाय, भैंस, बकरी एवं भेड़ की विभिन्न प्रजातियों एवं उनके लक्षण।
6. पशुओं का शरीरिक मापदण एवं चिन्हीकरण।
7. पशुओं की उम्र एवं दन्त विन्यास।
8. सामान्य प्रक्षेत्र प्रबंध की विधियॉ जैसे पृथक्कीकरण कीटाणु रहित करना एवं मृत पशु का विनष्टिकरण।
9. पशुओं की बुरी आदतें एवं रोकथान की उपाय।
10. पशु शाला का निर्माण एवं स्थल चयन, भारतीय परिवेश में पशु शाला का निर्माण विभिन्न प्रजातियों के लिए लगने वाली जगह का मापदण।
11. पशु प्रजनन हेतू नर एवं मादा का चयन।
12. पशुओं से दुग्ध, मांस एवं इ न प्राप्त करने के लिए आवश्यक आर्थिक गुण।
13. पशुओं के प्रजनन की विभिन्न विधियॉ एवं उनसे लाभ, हानि।
14. पशुओं के प्रजनन की विभिन्न अवस्थाओं जैसे वत्स, क्लोर, गाभिन, शुष्क, दुधारू एवं नर पशु के आहार के संबंध में जानकारी।
15. पशुओं में दुग्ध, मांस एवं इ न उत्पादन के लिए सामान्य आहार व्यवस्था।
16. दुग्ध दुहने की विभिन्न विधयां।
17. पशु दुग्ध उत्पादन की विधि।
18. स्वच्छ दुध उत्पादन की विधि।
19. भेड़ों से इ न प्राप्त करने की विधियॉ एवं लाभ, हानि।
20. इ न के विभिन्न भौतिक एवं रासायनिक गुणदोष।
21. इ न की गुणवत्ता को प्रभावित करने वाले कारक।
22. पशु मेला एवं गौशाला का रखरखाव।

21. विषय– सूकर, अश्व एवं खरगोश का प्रबंधन।

1. सूकर प्रबंधन
2. अश्व प्रबंधन
3. खरगोश प्रबंधन

22. विषय– सामान्य एवं आंगिक भेषज विज्ञान।

1. भेषज विज्ञान एक परिचय
2. औषधि परिभाषाऐंः दवाओं के विभिन्न स्त्रोत एवं क्रिया।
3. तंत्रानुसार दवाओं का नामकरण एवं परिभाषाऐं, उदाहरण एवं उपयोग।

23. विषय– कीमोथेरेपी एवं विष विज्ञान।

1. जीवाणु रोधी औषधियां, सल्फ औषधियां, पेनिसिलिन, सिफेलोस्पोरिन, अमाइनोगलाइकोसाइड, मैच्योलिड टेटर्सिाइकिकिन, किनोलेन, १लूरोकिनालेन, चिकित्सीय एवं नैदानिक उपयोग।
2. कवक रोधी औषधियॉ, चिकित्सीय एवं नैदानिक उपयोग।
3. पेट के कीड़ों के विरूद्ध औषधियॉ, एन्टीट्रिमेटोडल एंटी सिसटोडल, एंटी निमेटोडल औषधियॉ।
4. प्रोटोजोआ के विरूद्ध औषधियॉ, एंटी ववेसियल, एंटी थायलेरियल औषधियॉ।
5. बाह्य परजीवियों के विरूद्ध औषधियॉ।
6. देशी दवायें।
7. निस्क्रमक एवं एंटी सेप्टिक।
8. विष विज्ञान सामान्य परिचय

   इंतिहास, पृष्ठ भूमि,, परिभाषा, स्त्रोत, विष के प्रकार, निदान व उपचार के सामान्य सिद्धांत।

24. विषय– पशु पालन विस्तार।

1. ग्रामीण विकास के लिये विस्तार शिक्षा की भूमिका।
2. श्वेत च्रांति में राष्टीर्य डेरी विकास बोर्ड की भूमिका।
3. डेरी विकास, पशु प्रजनन एवं नस्ल सुधार में सरकारी संगठनों की भूमिका।
4. पशु प्रजनन एवं नस्ल सुधार में गैर सरकारी संगठनों की भूमिका।
5. कृषि एवं पशुपालन के लिए वित्त पोषण योजनायें।
6. पशुओं की बीमा व्यवस्था।

25. विषय–व्यवसायिक अण्डोत्पादक मुर्गियों एवं भक्ष्य पक्षियों (ब्रायलरों) की प्रबंधन व्यवस्था।

1. कुक्कुट उत्पादन हेतु आवश्यक सामान व संयंत्र।
2. चूजों एवं ब्रायलरों का प्रबंध।
3. पठोर मुर्गियों का प्रबंधन, स्वजाति भक्षण, चोंच कुतरना व आहार नियंत्रण।
4. अण्डोत्पादक व व्यवसायिक मुर्गियों व ब्रायलरों के जनकों का प्रबंध।
5. मुर्गी आहार के पोषक तत्व आहार घटक का परीक्षक।
6. विभिन्न कुक्कुट वर्गों की आहार आवश्यकतायें।
7. आहार निर्माण व परोसने की विधिया्।
8. पेयजल की गुणवत्ता, संग्रह व स्वच्छता।
9. प्रत्याबल व उससे बचाव।
10. बतख, टर्की व जापानी बटेर पालन की विशेषतायें व प्रबंध।
11. कुक्कुट रोग, उनके नियंत्रण व उपचार के उपाय, टीकाकरण व सावधानिया्।

26. विषय– कुक्कुट उत्पादन एवं प्रबंध।

1. कुक्कुट, उत्पादन एवं प्रबंध का महत्व, आवश्यकतायें व विशेषतायें।
2. मुर्गी, टर्की, जापानी बटेर बतख पक्षियों की शुद्ध व उन्नत नस्लें।
3. मुर्गियों की शारीरिक संरचना।
4. पाचन संस्थान।
5. जनन संस्थान, कृत्रिम गर्भाधारन।
6. अण्डा व कुक्कुट मांस की पोषण क्षमता।
7. इ ष्मायन हेतु अण्डों का चुनाव, संचयन रखना, अण्डों की सफाई व जीवाणु रहित करना, धूम्रीकरण, इ ष्मायन के लिए अधिकतम अनुकूल परिस्थितिया, उर्वरता एवं निर्गमन क्षमता को प्रभावित करने वाले कारक।
8. कुक्कुट गृह की संरचना को प्रभावित करने वाले कारक, विभिन्न कुक्कुट गृह व आवास की परिस्थितिया। गहरी बिछाली व पिंजरा पद्धति की लाभ व हानिया, कुक्कुट आवास की संरचना।
9. अण्डा व मांस का पोषण में महत्व।
10. मुर्गीपालन व ब्रायलर पालन से प्राप्त आय को प्रभावित करने वाले कारक।
11. 1000 ब्रायलरों के प्रक्षेत्र के आय व्यय का विवरण व प्रोजेक्ट रिपोर्ट।
12. 1000 व्यवसायिक अण्डा उत्पाद मुर्गियों के आय व्यय का विवरण व प्रोजेक्टर रिपोर्ट।
13. अण्डों व मांस का वर्गीकरण व विपणन की विधिया।
14. मुर्गियों को मारने व डेर्सि करने की विधया।
15. मांस व अण्डों का मूल्य संवर्धन, विभिन्न सह उत्पाद, शीत संग्रह व विपणन।

27. विषय– पशुओं के संक्रामक रोग।

1. रक्त परिवहन तंत्र से संबंधित रोग।
2. पाचन तंत्र।
3. मूत्र/जनन तंत्र।
4. स्नायू तंत्र के रोग।
5. उपाचय तंत्र।
6. आंख की बीमारी।

28. विषय– पशुओं के संक्रामक रोग।

1. जीवाणु जनित रोग– कारण, लक्षण, उपचार एवं रोकथाम।
2. परजीवी जनित रोग– कारण, लक्षण, उपचार एवं रोकथाम।
3. आंतरिक परजीवी जनित रोग– कारण, लक्षण, उपचार एवं रोकथाम।

29. विषय– पशु शल्य चिकित्सा विज्ञान का प्रारंभिक परिचय।

1. पशु शल्य चिकित्सा परिचय व विवरण।
2. शल्य चिकित्सा के सिद्धांत, शल्य चिकित्सा से पूर्व व पश्चात् की जाने वाली तैयारिया व जानकारी।

3. त्वचार व अन्य अंगों में लगाये जाने वाले टांकों की सामग्री, तरीके व गठानों के प्रकार।

4. एसेप्सिस, एन्टसेप्सिस व डिस्इन्फेक्शन विवरण एवं प्रकार।

5. सामान्य शल्य चिकित्सा के औजार व अन्य सामग्री और उनका स्टेरिलाइजेशन।

6. इन्फलेमेशन, फोड़ा, ड्यूमर, सिस्ट, हानिया, अल्सर, साइनस, फिस्चुला के लक्षण एवं उपचार।

7. घाव के प्रकार, उपचार एवं विषम परिस्थितियों में प्रबंधन।

8. रक्त स्त्राव को रोकना, शॉक, हीमेओमा का प्रारंभिक उपचार।

9. नेक्रोसिस, गैंग्रीन, शुष्क, भाप व ठण्ड से जलना, हड्डी का टूटना व जोड़ से उतरना एवं इनकी प्राथमिक चिकित्सा।

30. विषय– पशु शल्य चिकित्सा एवं शल्य क्रिया।

1. निश्चेतना संक्षिप्त परिचय एवं निश्चेतना में पशुओं की देखभाल।

2. क्षः रश्मि – संक्षिप्त परिचय एवं रेडियोग्राफी के लिए उनकी पोजीशन एवं देखभाल।

3. विशेष शल्य चिकित्साओं में आपरेशन के बाद पशुओं की देखभाल।

4. विभिन्न प्रकार के पट्टी बंधन एवं प्लास्टर लगाना।

5. विशेष परिस्थितियों में लघु शल्य चिकित्साओं का परिचय।

6. शल्य चिकित्सा में प्राथमिक स्तर की दवाइयों के उपयोग की जानकारी।

31. विषय– सामान्य मादा प्रजनन एवं प्रसूति विज्ञान।

1. पालतू मादा पशुओं के प्रजनन अंगों की जानकारी।

2. शारीरिक विकास, यौवन अवस्था एवं यौवन परिपक्वता।

3. पालतू पशुओं में ऋतुचक्र एवं ऋतु गर्मी० के लक्षण।

4. ऋतुचक्र के दौरान प्रजनन अंगों की जांच।

5. पालतू पशुओं में जेर के प्रकार, कार्य, गर्भावस्था की समयावधि एवं विभिन्न अवस्थाऐं।

6. गुदा मार्ग द्वारा गर्भ परीक्षण एवं तुलनात्मक परीक्षण।

7. गर्भावस्था के दौरान होने वाली बीमारिया, एवं समस्याएं।

8. मादा पशुओं में प्रसव के बाद होने वाली समस्याएं।

9. मादा पशुओं का बार–बार गर्मी पर आना।

10. पालतू पशुओं में प्रसव चिकित्सा।

11. प्रसव में आने वाली कठिनाइयां, जांच एवं निदान।

32. विषय– नर प्रजनन एवं कृत्रिम गर्भाधान।

1. नर जननांगों एवं वृषण का तुलनात्मक अध्ययन।

2. शारीरिक परिपक्वता एवं प्रजनन अंगों का विकास।

3. नर पशुओं में बांझपन के प्रकार, सामान्य जानकारी, जांच एवं उपचार।

4. संभोग के दौरान प्रजनन अंगों में चोट एवं अन्य संक्रमण।

5. वृषण अंगों का क्षय।

6. वृषण अंगों के आकार का सामान्य से छोटा होना।

7. कृत्रिम गर्भाधान के लाभ एवं सीमायें।

8. विभिन्न पालतू पशुओं में वीर्य एकत्रित करने की विधिया ृ।
9. कृत्रिम गर्भाधान की विधिया ृ।
10. वीर्य परीक्षण।
11. वीर्य को तरल करने की विधि एवं संरक्षण।
12. वीर्य का संग्रहण एवं स्थानान्तरण।

33. विषय– पशुचारा उत्पादन(भाग–1)।

1. मध्यप्रदेश में चारे की स्थिति एवं चारा उत्पादन बढ़ाने हेतु कार्य योजना।
2. रासायनिक खादों का सशक्त विकल्प – वर्मी कम्पोस्ट।
3. मौसम परिवर्तन एवं चारा उत्पादन।
4. चंद्रशूर की वैज्ञानिक खेती।
5. हरा चारा : जई की उन्नत उत्पादन तकनीकी।
6. रिजका Lucerne०।
7. मध्यप्रदेश की नई चारा फसल – राजमूृग।
8. लोबिया की उत्पादन तकनीकी।

34. विषय– पशुचारा उत्पादन(भाग–2)।

1. जैविक खेती एवं जैविक पोषक तत्वों के स्त्रोत एवं प्रबंधन।
2. बाजरा का तकनीकी उत्पादन।
3. चारा का परीक्षण एवं सूखे चारे की गुणवत्ता बढ़ाने हेतु उन्नत तकनीक।
4. कृषि एवं औषधि क्षेत्र में गोबर व गौमूत्र का आर्थिक महत्व।
5. बरसीम का उत्पादन।
6. हरे चारे की फसल मक्का।
7. नेपियर घास से भरपूर चारा कैसे लें।
8. हरी खाद।