



SEMESTER – I

PAPER CODE	SUBJECT NAME	THEORY HOURS	PRACTICAL HOURS	THEORY MARKS	PRACTICAL MARKS
CMS101	ANATOMY & PHYSIOLOGY	45 Min	1 Hrs.	50	50
CMS102	PHARMACOLOGY	45 Min	1 Hrs.	50	50
CMS103	PATHOLOGY	45 Min	1 Hrs.	50	50
CMS104	COMMUNITY HEALTH & HYGIENE	45 Min	1 Hrs.	50	50

ANATOMY & PHYSIOLOGY

Theory Syllabus

1. Introduction to Human Body

- Definition & scope of Anatomy and Physiology
- Levels of structural organization: cells, tissues, organs, systems
- Anatomical terms: planes, positions, directions, regions

2. Cell Biology

- Structure & function of the cell
- Cell organelles (nucleus, mitochondria, ribosomes, etc.)
- Cell division: mitosis & meiosis
- Basic genetics (chromosomes, DNA, RNA)

3. Tissues

- Types of tissues:
 - Epithelial tissue
 - Connective tissue
 - Muscular tissue
 - Nervous tissue
- Functions and locations

4. Skeletal System

- Structure and function of bones
- Types of bones & joints
- Major bones of the body (skull, vertebrae, limbs)
- Disorders: fractures, arthritis, osteoporosis

5. Muscular System



- Types of muscles: skeletal, smooth, cardiac
- Mechanism of muscle contraction
- Major muscle groups and their functions

6. Cardiovascular System

- Anatomy of the heart: chambers, valves, vessels
- Circulation of blood: pulmonary & systemic
- Blood vessels: arteries, veins, capillaries
- Blood pressure, pulse, ECG (basics)
- Disorders: hypertension, angina, heart attack

7. Blood and Lymphatic System

- Composition and functions of blood
- Blood cells (RBCs, WBCs, platelets)
- Blood groups and coagulation
- Lymphatic system: lymph nodes, spleen, tonsils
- Immunity: innate and acquired

8. Respiratory System

- Structure: nose to alveoli
- Physiology of respiration (inhalation, exhalation)
- Gas exchange
- Disorders: asthma, bronchitis, pneumonia, TB

9. Digestive System

- Structure and function: mouth to anus
- Accessory organs: liver, pancreas, gallbladder
- Digestion and absorption of nutrients
- Disorders: gastritis, ulcers, hepatitis, diarrhea

10. Nervous System

- Divisions: central & peripheral
- Brain: cerebrum, cerebellum, brainstem
- Spinal cord: structure and function
- Reflex action
- Disorders: stroke, epilepsy, meningitis

11. Endocrine System

- Major endocrine glands: pituitary, thyroid, adrenal, pancreas
- Hormones and their functions
- Endocrine disorders: diabetes, thyroid dysfunction

12. Urinary System



- Organs: kidneys, ureters, bladder, urethra
- Function of kidneys: urine formation, acid-base balance
- Disorders: UTI, kidney stones, nephritis

13. Reproductive System

- Male & female reproductive organs
- Menstrual cycle
- Fertilization and pregnancy (basic overview)
- Contraceptive methods
- Common disorders: PCOS, infertility, STDs

14. Integumentary System

- Skin structure: epidermis, dermis, glands
- Functions: protection, sensation, thermoregulation
- Disorders: eczema, scabies, infections

15. Special Senses

- Eye: structure and function
- Ear: hearing and balance
- Nose, tongue, skin: senses of smell, taste, touch

Practical Syllabus

I. Introduction to Human Body

- Identification of anatomical position and terminology
- Identification of body planes and sections
- Study of anatomical charts/models (organs and systems)

II. Skeletal System

- Identification of major bones of the human body (skull, vertebrae, ribs, humerus, femur, pelvis, etc.)
- Demonstration using skeletal models
- Study of bone joints and types (hinge, ball & socket, etc.)

III. Circulatory System

- Identification of heart chambers and major blood vessels using models or charts
- Pulse examination (radial, carotid)
- Measurement of blood pressure using sphygmomanometer

IV. Respiratory System



- Study of respiratory organs through charts/models (nose, pharynx, larynx, trachea, bronchi, lungs)
- Demonstration of breathing movements (chest rise)
- Respiratory rate measurement (normal and abnormal)

V. Digestive System

- Identification of digestive organs via charts/models (mouth, esophagus, stomach, intestines, liver, pancreas)
- Practical demonstration of abdominal quadrants
- Observation of peristaltic movements (in models)

VI. Nervous System

- Study of brain and spinal cord (model/chart)
- Identification of parts of the brain – cerebrum, cerebellum, medulla
- Reflex action demonstration (knee jerk)

VII. Reproductive System

- Identification of male and female reproductive organs (charts/models)
- Understanding of menstruation cycle (via chart)
- Fertilization and fetal development charts

VIII. Excretory System

- Identification of kidneys, ureters, bladder, urethra
- Urine formation process (flowchart/chart)
- Demonstration of kidney structure using model

IX. Endocrine System

- Study of major endocrine glands: pituitary, thyroid, adrenal, pancreas
- Observation of location and functions via charts

X. General Practicals

- Use of microscope (if applicable)
- Basic first aid techniques (cuts, burns, fractures)
- Identification of human body parts in charts or dummies

PHARMACOLOGY

Theory Syllabus



1. Introduction to Pharmacology

- Definition and scope
- History and development of essential drugs
- Sources of drugs: natural, synthetic, biological
- Dosage forms: tablets, capsules, syrups, injections, ointments

2. General Pharmacology

- Routes of drug administration (oral, IV, IM, topical, etc.)
- Absorption, distribution, metabolism, and excretion (ADME)
- Drug actions: agonists, antagonists, receptors
- Factors affecting drug action: age, weight, sex, disease, diet
- Drug dosage calculations (basic)

3. Adverse Effects & Drug Safety

- Types of adverse drug reactions (mild, severe, anaphylactic)
- Drug allergies
- Drug interactions
- Drug dependence and addiction
- Concept of pharmacovigilance

4. Essential Drugs

- Definition & importance (WHO Essential Drug List)
- Rational use of drugs
- Categories of essential drugs used in rural healthcare

5. Autonomic Nervous System Drugs

- Sympathomimetics and sympatholytics (e.g., adrenaline, atenolol)
- Parasympathomimetics and blockers (e.g., atropine)

6. Drugs Acting on the Respiratory System

- Cough suppressants (antitussives)
- Expectorants
- Bronchodilators (e.g., salbutamol, theophylline)
- Antihistamines

7. Cardiovascular Drugs

- Antihypertensives (e.g., amlodipine, atenolol)
- Diuretics (e.g., furosemide)
- Antianginal drugs
- Anticoagulants (basic understanding)

8. Gastrointestinal Drugs



- Antacids, H₂ blockers (e.g., ranitidine), PPIs (e.g., omeprazole)
- Laxatives and purgatives
- Antiemetics (e.g., domperidone, ondansetron)
- Antidiarrheal drugs (e.g., ORS, loperamide)

9. Antimicrobials

- Antibiotics: penicillins, tetracyclines, macrolides, fluoroquinolones
- Antifungals (e.g., clotrimazole, fluconazole)
- Antivirals (basic knowledge)
- Antitubercular drugs (DOTS overview)
- Antibiotic resistance and safe use

10. Antiparasitic & Antiprotozoal Drugs

- Anthelmintics (e.g., albendazole, mebendazole)
- Antimalarials (chloroquine, artemisinin combinations)
- Anti-amoebic drugs (e.g., metronidazole)

11. Analgesics, Antipyretics & Anti-Inflammatory Drugs

- NSAIDs (paracetamol, ibuprofen, diclofenac)
- Opioids (codeine – caution advised)
- Uses, side effects, contraindications

12. Central Nervous System Drugs

- Sedatives and hypnotics (e.g., diazepam)
- Antiepileptic drugs (basic overview)
- Antidepressants and antipsychotics (general awareness)

13. Hormones & Endocrine Drugs

- Insulin (types and administration)
- Oral hypoglycemics (e.g., metformin, glibenclamide)
- Thyroid drugs (e.g., thyroxine)
- Steroids (uses and cautions)

14. Vaccines & Immunization

- Types of vaccines: live, killed, toxoid
- Immunization schedule (as per national guidelines)
- Storage & handling (cold chain)

15. Emergency & First Aid Drugs

- Adrenaline
- ORS
- IV fluids
- Antihistamines



- Antispasmodics
- Antiseptics & disinfectants

16. National Health Program Drugs

- TB (RNTCP), Malaria (NVBDCP), Family Planning (contraceptives)
- Leprosy, HIV-AIDS management kits
- Iron, folic acid, vitamin A, ORS under government schemes

Practical Syllabus

I. Drug Identification

- Identification of commonly used essential drugs (tablets, syrups, injectables, ointments)
- Identification of different drug dosage forms:
 - Tablet
 - Capsule
 - Syrup
 - Injection
 - Drops
 - Ointment
 - Lotion
 - Suppository

II. Drug Classification and Label Reading

- Classification of drugs based on their action (e.g., analgesics, antipyretics, antibiotics, antihypertensives)
- Reading and interpreting medicine labels
- Understanding drug composition, strength, and expiry date
- Brand name vs. generic name identification

III. Prescription & Dosage

- Understanding components of a prescription
- Writing a sample prescription (without violating medical authority)
- Dosage calculation based on age and body weight
- Pediatric and geriatric dose differences

IV. Routes of Drug Administration (Demonstration)

- Oral route – tablet, capsule, liquid administration
- Topical route – ointment, lotion, patches
- Inhalation route – nebulizer (demo only)
- Parenteral routes (demonstration on dummies only):
 - Intramuscular (IM)
 - Subcutaneous (SC)



- Intradermal (ID)
 - Intravenous (IV)
- Use of insulin syringe, tuberculin syringe, disposable syringe

V. Drug Storage and Handling

- General rules for drug storage (temperature, light, moisture sensitivity)
- Handling of thermolabile and photosensitive drugs
- First In First Out (FIFO) principle
- Storage of vaccines and cold chain maintenance (basic overview)

VI. Basic Pharmacology Calculations

- Conversion between mg, ml, grams, liters
- Pediatric dose calculation (Young's rule, Clark's rule – basic understanding)
- Dose preparation from stock solution

VII. Aseptic Techniques

- Handwashing before drug administration
- Use of gloves and mask during injection
- Disinfection of injection site and ampoule neck

PATHOLOGY

Theory Syllabus

1. Introduction to Pathology

- Definition, scope, and branches of pathology
- Importance of pathology in clinical diagnosis
- General concepts: etiology, pathogenesis, lesions, prognosis

2. General Pathology

- **Cell injury and adaptation**
 - Causes and types of cell injury
 - Atrophy, hypertrophy, hyperplasia, metaplasia
- **Inflammation**
 - Acute and chronic inflammation
 - Cardinal signs and mediators
- **Healing and repair**
 - Wound healing process (primary and secondary intention)

3. Hematology (Blood Disorders)

- **Anemias:** iron deficiency, megaloblastic, hemolytic



- **Leukemias:** acute and chronic (basic understanding)
- **Bleeding disorders:** hemophilia, ITP, clotting time/bleeding time
- **CBC interpretation** (hemoglobin, TLC, DLC, ESR)

4. Clinical Microbiology (Basics)

- Classification of microorganisms: bacteria, viruses, fungi, protozoa
- Common infections: TB, typhoid, malaria, hepatitis, HIV/AIDS
- Sample collection & preservation: blood, urine, sputum, stool, pus
- Basic staining techniques (Gram stain, AFB stain – concept only)
- Universal precautions and infection control

5. Systemic Pathology

A. Cardiovascular System

- Atherosclerosis, hypertension, heart failure
- Myocardial infarction (basic concept)

B. Respiratory System

- Pneumonia, bronchitis, tuberculosis
- Lung abscess (brief overview)

C. Gastrointestinal Tract

- Gastritis, peptic ulcer, hepatitis, cirrhosis
- Appendicitis, typhoid, diarrhea

D. Urinary System

- Nephritis, UTI, kidney stones
- Basic urine analysis interpretation

E. Reproductive System

- PID, STDs, infertility (basic causes)
- Cervical cancer (awareness)

6. Clinical Pathology

- **Urine Examination**
 - Physical, chemical, microscopic
 - Tests for albumin, sugar, ketones
- **Stool Examination**
 - Consistency, presence of mucus/blood
 - Parasites (e.g., ova, cysts)
- **Sputum Examination**
 - Color, odor, consistency
 - Use in TB diagnosis



- **WBC Count & Differential Count**

- Understanding neutrophils, lymphocytes, eosinophils

7. Parasitology

- Life cycle and pathology of:
 - **Malaria** (Plasmodium)
 - **Worm infestations:** roundworm, hookworm, tapeworm
 - **Amoebiasis, Giardiasis**

8. Basics of Histopathology

- Introduction to biopsy and FNAC
- Basic tissue processing and staining (concept only)
- Role of histopathology in cancer diagnosis

9. Laboratory Safety & Ethics

- Biomedical waste management
- Personal protective equipment (PPE)
- Specimen handling and patient privacy

Practical Syllabus

I. Introduction to Laboratory Practices

- Identification and use of basic laboratory equipment:
 - Test tubes
 - Microscope
 - Centrifuge
 - Glass slides
 - Lancet
 - Dropper
- Understanding lab safety rules and precautions
- Cleaning and sterilization of lab glassware
- Disposal of biomedical waste (sharp, infectious, non-infectious)

II. Blood Sample Collection & Examination

- Methods of blood collection (capillary and venous – demonstration only)
- Preparation of peripheral blood smear
- Hemoglobin estimation using Sahli's method or any available kit
- Total and differential leukocyte count (overview)
- RBC count (principle and method – theory & observation)
- Blood grouping and Rh typing (demonstration/practical observation)
- ESR (Erythrocyte Sedimentation Rate) test demonstration



- Packed Cell Volume (PCV) – demonstration only

III. Urine Examination

- Urine sample collection procedure
- Physical examination of urine – color, clarity, odor, volume
- Chemical examination – pH, albumin, sugar (using dipstick or Benedict's test)
- Microscopic examination of urine (pus cells, RBCs, crystals – demo)

IV. Stool Examination

- Stool sample collection procedure
- Physical examination – color, consistency, presence of mucus or blood
- Detection of ova, cysts, and parasites (under microscope – observation only)
- Occult blood test – demo or kit-based

V. Other Common Diagnostic Tests

- Widal test for typhoid (slide agglutination method – demonstration)
- Malaria parasite test (thick and thin smear – demo)
- Rapid diagnostic tests (RDT kits):
 - Dengue
 - HIV (demo only)
 - HBsAg (Hepatitis B – demo only)

VI. Record Maintenance & Patient Interaction

- Maintaining a pathology practical record book
- Understanding how to fill laboratory report forms
- Basic communication skills with patients during sample collection
- Counseling patients regarding sample collection (fasting, hygiene, etc.)

VII. Viva & Internal Assessment

- Viva voce based on procedures, equipment, and test interpretation
- Spot identification of lab tools or test results
- Internal assessment through record submission and observation

COMMUNITY HEALTH & HYGIENE

Theory Syllabus

1. Introduction to Community Health

- Definition, aims & scope of community health
- Difference between community health & personal health
- Role of a community health worker



- Primary Health Care: principles and levels
- Millennium Development Goals (MDGs) & Sustainable Development Goals (SDGs)

2. Personal Hygiene

- Importance of personal cleanliness
- Care of skin, hair, teeth, eyes, hands, feet
- Nail hygiene, menstrual hygiene, clothing, and footwear
- Handwashing techniques (WHO guidelines)

3. Environmental Hygiene

- Safe housing standards
- Importance of clean surroundings
- Waste disposal methods (biodegradable & non-biodegradable)
- Importance of air, light, and ventilation
- Control of vectors: mosquitoes, flies, rodents

4. Water, Sanitation & Hygiene (WASH)

- Sources of water: safe vs unsafe
- Water purification methods: boiling, chlorination, filtration
- Sanitation: types of latrines, septic tank system
- Prevention of waterborne diseases
- Concept of open defecation and its effects

5. Communicable Diseases & Prevention

- Modes of disease transmission: direct, indirect, vector-borne
- Communicable diseases: TB, cholera, typhoid, malaria, dengue, COVID-19
- Isolation, quarantine, disinfection
- Role of hygiene in disease prevention
- Common childhood infections: measles, diphtheria, whooping cough

6. Immunization & Preventive Services

- National Immunization Schedule (India)
- Types of vaccines: oral, injectable, live, killed
- Cold chain system
- Role of community workers in vaccination drives

7. Nutrition & Community Health

- Definition and importance of nutrition
- Balanced diet: food groups and nutrients
- Malnutrition: protein energy malnutrition, anemia, vitamin deficiencies
- Community nutrition programs: Mid-Day Meal, ICDS, Iron-Folic Acid distribution

8. Maternal and Child Health (MCH)



- Antenatal, postnatal care
- Safe delivery practices (TBA & institutional)
- Breastfeeding: benefits and techniques
- Growth monitoring of children
- Common neonatal and child illnesses

9. Mental Health & Social Hygiene

- Common mental health issues in the community
- Importance of stress management and counseling
- Stigma of mental illness and awareness
- Role of family and community in mental health care

10. Health Education & Communication

- Principles of health education
- Methods: individual, group, mass communication
- Use of IEC materials (pamphlets, posters, videos)
- Counseling skills for health workers

11. First Aid & Community-Based Care

- Basic first aid: wounds, burns, fractures, fainting
- Handling of emergencies: bleeding, snake bite, poisoning
- Role of community health worker during disasters

12. National Health Programs

- Overview of:
 - **NHM (National Health Mission)**
 - **RCH (Reproductive & Child Health)**
 - **NACP (HIV/AIDS)**
 - **Pulse Polio, Malaria Eradication, Leprosy Control**
 - Family welfare and sanitation campaigns

13. Social Determinants of Health

- Effect of poverty, education, caste, gender, occupation
- Population explosion and its health impact
- Alcohol, tobacco, and drug abuse: prevention and community role

14. Record Keeping & Reporting

- Household survey
- Health card, immunization register, birth/death register
- Reporting formats used by ASHA/ANM/CHWs

Practical Syllabus

I. Community Health Survey & Records



- How to conduct a basic family health survey
- Preparation of a family folder / health register
- Identification of high-risk families (e.g., TB, malnutrition, maternal cases)
- Data collection for common communicable diseases
- Preparing health education reports

II. Personal Hygiene Demonstrations

- Demonstration of correct handwashing technique (6 steps – WHO method)
- Personal grooming and hygiene (nails, hair, clothing, foot care)
- Demonstration of oral hygiene (tooth brushing technique)
- Importance of menstrual hygiene – use of sanitary pads (demo only)
- Role play on personal hygiene awareness

III. Environmental Sanitation

- Water purification methods at home (boiling, filtering, chlorination)
- Sanitation practices – cleaning toilets, waste disposal
- Mosquito control measures (elimination of breeding sites)
- Demonstration of safe food storage and cleanliness
- Importance of ventilation and lighting in a healthy home

IV. Health Education & Promotion

- Preparation of health education charts/posters on:
 - Nutrition
 - Immunization
 - Sanitation
 - Vector-borne diseases
- Role play/skit for community awareness (family planning, hygiene, disease prevention)
- Conducting group discussions and awareness sessions in community settings
- Demonstration of ORS (Oral Rehydration Solution) preparation
- Demonstrating correct use of common health tools (thermometer, BP machine)

V. First Aid & Basic Care

- Basic first aid for cuts, burns, insect bites
- Use of first aid kit – identification of contents
- Dressing and bandaging (minor wounds)
- Transporting a sick patient (demo using stretcher or support method)
- Care of fever, cold, diarrhea, vomiting at home

VI. Records, Viva, and Assessment

- Maintenance of community visit logbook
- Preparation of case study or family folder
- Viva voce on hygiene practices and community interaction



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- Internal assessment based on community exposure and participation