PHARMACOLOGY

Placement : Second Year **Theory – 45 Hours**

Course Description - This course is designed to enable students to acquire understanding of pharmacodynamics, pharmacokinetics, principles of therapeutics and nursing implications.

Specific objectives – at the end of the course the students are able to:

1. Understand the basic concepts of pharmacology
2. Understand the pharmacology of common chemotherapeutics.
3. Understand common antiseptics, disinfectants and insecticides.
4. Understand drug acting on various systems of human body.
5. Understand alternative systems of medicines.

Unit	Time (Hrs)	Learning Objective	Contents	Teaching Learning Activities	Assessment Methods
I	**3**	Describe pharmacodynamics, pharmacokinetics, classification and the principles of drug administration	**Introduction to Pharmacology** • Definitions • Sources • Terminology use • Types: Classification • Pharmacodynamics: Actions, therapeutic, Adverse, toxic effects. • Pharmacokinetics: Absorption, distribution, metabolism, interaction, excretion • Review: Routes and principles of administration of drugs • Indian pharmacopoeia: Legal issues • Storage of various drugs • Calculation of drugs dosage • Rational use of drugs • Principles of therapeutics	• Lecture Discussion	• Short answers • Objective type
II	**6**	Explain chemotherapy of specific infections and infestations and nurse's responsibilities	**Chemotherapy** Pharmacology of commonly used: • Penicillin • Cephalosporins • Amino glycosides • Macrolide & Broad Spectrum Antibiotics • Sulfonamides	• Lecture Discussion • Drug study/ Presentation	• Short answers • Objective type

			• Quinolones • Antiamoebic • Antimalarials • Antihelmintics • Antiscabies agents • Antiviral & Antifungal agents • Antitubercular drugs • Antileprosy drugs • Anticancer drugs • Immuno-suppressants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.		
III	**2**	Describe antiseptics, disinfectants, insecticides and nurse's responsibilities	**Pharmacology of commonly used antiseptics, disinfectants and insecticides** • Antiseptics: Composition, action, dosage, route, indications, contraindications, drug interactions, side-effects, adverse effects, toxicity, and role of nurse • Disinfectants • Insecticides	• Lecture Discussion • Drug study/ Presentation	• Short answers • Objective type
IV	**2**	Describe drugs acting gastrointestinal system and nurse's responsibilities	**Drugs acting on G I System** Pharmacology of commonly used • Antiemetics • Emetics • Purgatives • Antacids • Cholinergic • Anticholinergics • Fluid and Electrolyte therapy • Antidiarrhoeals • Histamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type

V	**2**	Describe drugs used on Respiratory systems and nurse's responsibilities	**Drugs used on Respiratory System** Pharmacology of commonly used • Antiasthmatics • Mucolytics • Decongestants • Expectorants • Antitussives • Bronchodilators • Broncho constrictors • Antihistamines Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type
VI	**2**	Describe drugs used on Urinary systems and nurse's responsibilities	**Drugs used on Urinary System** Pharmacology of commonly used • Diuretics and Antidiuretics • Urinary antiseptics • Cholinergics and anticholinergics • Acidifiers and alkalanizers Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type
VII	**4**	Describe drugs used in deaddiction, emergency, deficiency of vitamins & minerals, positioning, for immunization and immunosuppression and nurse's responsibilities	**Miscellaneous** • Drugs used in deaddiction • Drugs used in CPR & emergency • Vitamins and minerals • Immunosuppressants • Antidotes • Antivenom • Vaccines and Sera	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type

VIII	**1**	Describe drugs used on skin and mucous membranes and nurse's responsibilities	**Drugs used on skin and mucus membranes** • Topical applications for skin, eye, ear, nose, and buccal cavity • Antipruritics Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type
IX	**8**	Describe drugs used on Nervous system and nurse's responsibilities	**Drugs acting on Nervous System** Basic & applied pharmacology of commonly used: • Analgesics & Anesthetics ➢ Analgesics - Nonsteroidal anti-inflammatory drugs (NSAID) ➢ Antipyretics ➢ Hypnotics and sedatives - Opioids - Non opioids - Tranquilizers - General & local anaesthetics - Gases – Oxygen, nitrous oxide, Carbon dioxide • Cholinergic & anticholinergics: ➢ Muscle relaxants ➢ Major tranquilizers ➢ Anti psychotics ➢ Antidepressants ➢ Anticonvulsants ➢ Adrenergics ➢ Noradrenergics ➢ Mood stabilizers ➢ Acetylcholine ➢ Stimulants Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type

X	**5**	Describe drugs used on Cardiovascular system and nurse's responsibilities	**Cardiovascular Drugs** • Haematinics • Cardiotonics • Anti anginals • Antihypertensives & vasodilators • Anti-arrhythmics • Plasma expanders • Coagulants & anticoagulants • Antiplatelets & thrombolytics • Hypolipidemics Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type
XI	**4**	Describe drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy and nurse's responsibilities	**Drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy** • Insulin & Oral hypoglycemics • Thyroid supplements & suppressants • Steroids, Anabolics • Uterine stimulants & relaxants • Oral contraceptives • Other estrogen – progesterone preparations • Corticotrophin & Gonadotropines • Adrenaline • Prostaglandin • Calcitonins • Calcium salts • Calcium regulators Composition, action, dosage, route, indications, contraindications, drug interactions, side effects, adverse effects, toxicity & role of nurse.	• Lecture Discussion • Drug study/ presentations	• Short answers • Objective type

XII	**6**	Demonstrate awareness of the common drugs used in alternative system of medicine	**Introduction to drugs used in alternative system of medicine** • Ayurveda, Homeopathy, Unani and Siddha etc	• Lecture Discussion • Observational visits	• Short answers • Objective type

Bibliography: (Pharmacology)

1. Satoskar, Bhandarkar, Ainapure: Pharmacology and Pharmacotherapeutics, 18 Edition Popular Prakashan Mumbai.
2. M M Das: Pharmacology, Books & Allied (p) Ltd, 4 Edition 2001.
3. Linda, Skidmore Roth: Mosby's 2000 Nursing Drug Reference, Mosby Inc, Harcourt Health Sciences Company, Missouri 2000.
4. Ramesh Karmegan: First aid to Pharmacology for undergraduates, Paras Medical publishers, Hyderabad, India, 1 Edition 2003.
5. K D Tripathi: Essentials of Medical Pharmacology, 4 Editions, Jaypee Brothers, Bangalore.
6. Govoni & Hayes: Drugs and nursing implications, 8 Edition, Appleton & Lange Newyork.
7. Rodman & Smith: Clinical pharmacology in nursing, 2 Edition, J B Lippincott company, Philadelphia.
8. Richard A Lehne : Pharmacology for nursing care , 3 Edition ,W B S aunderers company , Philadelphia, 1990.
9. Lalit Mishra: Drug Today, Vol 12, No 12, Lorina publications Inc. Delhi 2004..

PATHOLOGY AND GENETICS

Placement : Second Year

Theory – 45 Hours
Pathology – 30 Hrs
(Theory 20+Practical 10)
Genetics-15 hrs

A: PATHOLOGY

Course Description - This course is designed to enable students to acquire knowledge of pathology of various disease conditions and apply this knowledge in practice of nursing.

Specific objectives – at the end of the course the students are able to:

1. Understand the basic concepts of pathology.
2. Understand the pathophysiological changes in different system disorders.
3. Assist for various pathological tests conducted in the clinical field.
4. Collect and send the pathological tests and infer their results with patient conditions.

Unit	Time (Hrs)	Learning Objective	Contents	Teaching Learning Activities	Assessment Methods
I	**T=03**	1. Define the common terms used in pathology 2. Appreciate the deviations from normal to abnormal structure and functions of the body system	**General Pathology** • Introduction to pathology • Importance of the study of pathology • Definition of terms • Methods & techniques • Cellular & tissue changes • Infiltration and regeneration • Inflammations and infections • Wound healing • Vascular changes • Cellular growth and neoplasms • Normal and cancer cell • Benign and malignant growths • In situ carcinoma • Disturbances of fluid and electrolyte balance, role of nurse	• Lecture • Discussion • Drug study/ presentations	• Short answers • Objective type

II	**T=10** **P=05**	Explain pathological changes in disease conditions of various systems	**Special Pathology** • Pathological changes in disease conditions of various systems: • Respiratory tract ➢ Tuberculosis, Bronchitis, ➢ Pleural effusion & Pneumonia ➢ Lung abscess, emphysema, bronchiectasis ➢ Bronchial asthma, chronic obstructive pulmonary disease and tumours. • Cardiovascular system ➢ Pericardial effusion ➢ Rheumatic heart disease ➢ Infective endocarditis, atherosclerosis ➢ Ischemia, infarction & aneurism	• Lecture • Discussion • Explain using charts, slides, specimen, x-rays and scans • Visit to pathology lab, endoscopy unit and OT	• Short answers • Objective type
			• Gastointestinal tract ➢ Peptic ulcer, Typhoid ➢ Carcinoma of GI tract buccal, esophageal, gastric and intestinal • Liver, Gall bladder & pancreas ➢ Hepatitis, chronic liver abscess, Cirrhosis ➢ Tumours of liver, gall bladder and pancreas ➢ Cholecystitis • Kidneys & Urinary tract ➢ Glomerulonephritis, pyelonephritis ➢ Calculi, Renal failure, Renal carcinoma & Cystitis • Male genital system ➢ Cryptorchidism, testicular atrophy ➢ Prostatic hyperplasia, Carcinoma penis & prostate • Female genital system ➢ Fibroids ➢ Carcinoma cervix & endometrium ➢ Vesicular mole, choriocarcinoma ➢ Ectopic gestation ➢ Ovarian cyst & tumours	• Lecture • Discussion • Explain using charts	• Short answers • Objective type

			• Cancer breast • Central Nervous System ➢ Vascular disorders – thrombosis, embolism ➢ Stroke, paraplegia, quadriplegia ➢ Tumours, meningiomas-gliomas • Metastatic tumour • Skeletal system ➢ Bone healing, osteoporosis, osteomyelitis • Arthritis and tumours		
III	**T=04** **P=03**	Describe various laboratory test in assessment and monitoring of disease conditions	**Clinical Pathology** • Various blood and bone marrow tests in assessment and monitoring of disease conditions ➢ Hemoglobin ➢ RBC, white cells & platelet counts ➢ Bleeding time, clotting time and prothrombin time ➢ Blood grouping and cross matching ➢ Blood chemistry ➢ Blood culture ➢ Serological and immunological tests ➢ Other blood tests ➢ Examination of bone marrow ➢ Methods of collection of blood specimen for various clinical pathology, biochemistry, microbiological tests, inference and normal values	• Lecture • Discussion • Demonstration	• Short answers • Objective type

IV	**T=02** **P=01**	Describe the laboratory tests for examination of body cavity fluids, transudates and exudates	**Examination of body cavity fluids, transudates and exudates** • The laboratory tests used in CSF analysis • Examination of other body cavity fluids, transudates and exudates sputum, wound discharge etc. • Analysis of gastric and duodenal contents • Analysis of semen- sperm count, motility and morphology and their importance in infertility • Methods of collection of CSF and other cavity fluids specimen for various clinical pathology, biochemistry, microbiology tests, inference and normal values. • Nurse's role in assisting and preparing the patient for these diagnostic tests	• Lecture • Discussion • Demonstration	• Short answers • Objective type
V	**T=01** **P=01**	Describe the laboratory tests for examination of Urine and Faeces	**Urine & Faeces** • Urine ➢ Physical characteristics ➢ Analysis ➢ Culture and sensitivity • Faeces ➢ Characteristics ➢ Stool examination: occult blood, ova, parasite and cyst, reducing substance etc. • Methods of collection for various tests, inference and normal values	• Lecture • Discussion • Demonstration	• Short answers • Objective type

Lab: 10 Hrs

Visits to: -

- Pathology lab
- Endoscopy unit
- Operation Theatre
- Routine examination of urine
- Hb estimation
- Cell counts

Bibliography - Pathology

1. Harsh Mohan : Text book of Pathology, IV Edition Jaypee Brothers, New Delhi 2000.
2. Heller : Pathology: Comprehensive Review 1999 Edition.
3. Emanuel Rubin M D, John L Farber : Pathology , III Edition , Lippincott, Philadelphia 1999.
4. Carol Mattson Porth : Pathophisiology ,VII Edition Lippincott Philadelphia 2002.
5. Ramzi S Cotran etal : Robins Pathologic basib of disease, VI Edition, W B Saunders coy USA 1999.
6. JCE Underwood : General and systemic pathology , III Edition, Churchill liuvingstone , Philadelphia 2000.
7. Canjanov and Linder : Anderson's pathology, X Edition , Lippincott , Philadelphia 1996.
8. Vinay Kumar M D etal : Basic Pathology , VI Edition W B Saunders coy USA 1997.
9. Walter F Coulson : Surgical Pathology , II Edition J B Lippincott coy Philadelphia, 1988.
10. Parakrama Chandrasoma : Concise pathology, III Edition, Hall International, USA,1998.
11. Lynne's Gracia, M S & David A Brucker : Diagnostic medical parasitology , III Edition ASM press, Washington'2005.
12. Haber et al : Differential diagnosis in pathology , W B Saunders coy, Philadelphia, 2002.

B – GENETICS

Placement : Second Year **Theory – 15 Hours**

Course Description - This course is designed to enable students to acquire understanding of Genetics, it role in causation and management of defects and diseases.

Specific objectives – At the end of the course students are able to:

1. Understand the basic concepts of genetics
2. Understand maternal, prenatal and genetic influences on development of defects and diseases
3. Understand the significance of genetic testing.
4. Understand genetic disorders in various age groups.
5. Appreciate services related to genetics

Unit	Time (Hrs)	Learning Objective	Contents	Teaching Learning Activities	Assessment Methods
I	**03**	Explain nature, principles and perspectives of heredity	**Introduction** • Practical application of genetics in Nursing • Impact of genetic condition on families • Review of cellular division mitosis and meiosis • Characteristics and structure of genes • Chromosomes – sex determination • Chromosomal aberrations pattern of inheritance ➢ Mendalian theory of inheritance ➢ Multiple allots and blood groups ➢ Sex linked inheritance ➢ Mechanism of inheritance ➢ Errors in transmission (Mutation)	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type
II	**03**	Explain maternal, prenatal and genetic influences on development of defects and diseases	**Maternal, prenatal and genetic influences on development of defects and diseases** ➢ Conditions affecting the mother: genetic and infections ➢ Consanguinity atopy ➢ Prenatal nutrition and food allergies	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type

			➢ Maternal age ➢ Maternal drug therapy ➢ Prenatal testing and diagnosis ➢ Effect of radiation, drugs and chemicals ➢ Infertility ➢ Spontaneous abortion ➢ Neural tube defects and the role of folic acid in lowering the risks ➢ Down syndrome (Trisomy 21)		
III	**02**	Explain the screening methods for genetic defects and diseases in neonates and children	**Genetic tests in neonates and children** • Screening for ➢ Congenital abnormalities ➢ Developmental delay ➢ Dysmorphism	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type
IV	**02**	Identify genetic disorders in adolescents and adults	**Genetic conditions of adolescents and adults** • Cancer genetics Familial cancer • Inborn errors of metabolism • Blood group alleles and hematological disorders • Genetic haemochromatosis • Huntington's disease • Mental illness	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type
V	**05**	Describe the role of nurse in genetic services and counselling	**Services related to Genetics** • Genetic testing • Human genome project • Gene therapy • The Eugenics movement • Genetic counseling • Legal and ethical issues • Role of nurse	• Lecture • Discussion • Explain using charts, slides	• Short answers • Objective type

Bibliography –(Genetics)

1. S Mandal: Fundamentals of Human Genetics II Edition New Central Book Agency, Kolkota 1996
2. S D Gangane : Human Genetics II Edition, Saurabh Printers, Noida.
3. Jorde Carey BamshadWhite : Medical Genetics, Mosby 2003.
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14. Smell, Richard S: Clinical Embryology for medical students, Little Brown and Company, Boston,1972.
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Evaluation Scheme

Internal Assessment: **Maximum 25 Marks**

Theory: **15 Marks**

	Pharmacology	**Pathology and genetics**	**Total Marks**	**Average Out of**
Mid-term	30	20	50	--
Pre-final	40	35	75	--
		Total	**125**	**15**

(125 Marks to be converted in to 15 Marks for Internal Assessment (Theory)

Assignments: Two

a) Pharmacology - Drug Study / Drug Presentation 25 Marks

b) Pathology - Preparation of Patient for diagnostic Test 25 Marks

Total: 50 Marks

(50 Marks to be converted in to 10 Marks for Internal Assessment (Assignments)

External Assessment

University Examination (Theory) **75 Marks**

Format for Assignment: -

i) Drug study

- **Index of drug**
- **Introduction**
- **Classification of drugs**
- **Factors affecting action of drugs**
- **Name of the drug (Trade & Pharmaceutical name)**
- **Preparation, strength and dose**
- **Indications and contraindications**
- **Actions**
- **Adverse effects and drug interactions**
- **Nursing responsibility**
- **Conclusion**
- **References**

Evaluation criteria

Planning and organization ----------	05
Content ----------	10
Nursing responsibility ----------	05
Conclusion & References ----------	05
Total	**25**

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ii) Preparation of patients for diagnostic tests

- **Type of investigation**
- **Indications**
- **Preparation of the patient**
- **Do's and Dont's**
- **Documents to be carried along**
- **Complications**
- **Aftercare of the patient**
- **Conclusion**
- **Reference**

Evaluation criteria

Criteria	**Marks**
Organization----------	10
Content ----------	10
Conclusion & References ----------	05
Total	**25**