

PATHOLOGY - II AND GENETICS

PLACEMENT: IV SEMESTER

THEORY: 1 Credit (20 hours) (Includes lab hours also)

DESCRIPTION: This course is designed to enable students to acquire knowledge of pathology of various disease conditions, understanding of genetics, its role in causation and management of defects and diseases and to apply this knowledge in practice of nursing.

COMPETENCIES: On completion of the course, the students will be able to

1. Apply the knowledge of pathology in understanding the deviations from normal to abnormal pathology
2. Rationalize the various laboratory investigations in diagnosing pathological disorders
3. Demonstrate the understanding of the methods of collection of blood, body cavity fluids, urine and feces for various tests
4. Apply the knowledge of genetics in understanding the various pathological disorders
5. Appreciate the various manifestations in patients with diagnosed genetic abnormalities
6. Rationalize the specific diagnostic tests in the detection of genetic abnormalities.
7. Demonstrate the understanding of various services related to genetics.

COURSE OUTLINE

T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	5 (T)	Explain pathological changes in disease conditions of various systems	<p>Special Pathology:</p> <p>Pathological changes in disease conditions of selected systems</p> <p>1. Kidneys and Urinary tract</p> <ul style="list-style-type: none"> • Glomerulonephritis • Pyelonephritis • Renal calculi • Cystitis • Renal Cell Carcinoma • Renal Failure (Acute and Chronic) <p>2. Male genital systems</p> <ul style="list-style-type: none"> • Cryptorchidism • Testicular atrophy • Prostatic hyperplasia • Carcinoma penis and Prostate. <p>3. Female genital system</p> <ul style="list-style-type: none"> • Carcinoma cervix • Carcinoma of endometrium • Uterine fibroids • Vesicular mole and Choriocarcinoma • Ovarian cyst and tumors <p>4. Breast</p> <ul style="list-style-type: none"> • Fibrocystic changes • Fibroadenoma • Carcinoma of the Breast <p>5. Central nervous system</p> <ul style="list-style-type: none"> • Meningitis. • Encephalitis • Stroke • Tumors of CNS 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides, X-rays and scans • Visit to pathology lab, endoscopy unit and OT 	<ul style="list-style-type: none"> • Short answer • Objective type
II	5 (T)	Describe the laboratory tests for examination of body cavity fluids, urine and faeces	<p>Clinical Pathology</p> <ul style="list-style-type: none"> • Examination of body cavity fluids: <ul style="list-style-type: none"> ○ Methods of collection and examination of CSF and other body cavity fluids (sputum, wound discharge) specimen for various clinical pathology, biochemistry and microbiology tests 	<ul style="list-style-type: none"> • Lecture • Discussion • Visit to clinical lab and biochemistry lab 	<ul style="list-style-type: none"> • Short answer • Objective type

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
			<ul style="list-style-type: none"> • Analysis of semen: <ul style="list-style-type: none"> ○ Sperm count, motility and morphology and their importance in infertility • Urine: <ul style="list-style-type: none"> ○ Physical characteristics, Analysis, Culture and Sensitivity • Faeces: <ul style="list-style-type: none"> ○ Characteristics ○ Stool examination: Occult blood, Ova, Parasite and Cyst, Reducing substance etc. ○ Methods and collection of urine and faeces for various tests 		

Bibliography – Pathology

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4. Carol Mattson Porth : Pathophysiology ,VII Edition Lippincott Philadelphia 2002.
5. Ramzi S Cotran et al : Robins Pathologic basis 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 et al : 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.

GENETICS
COURSE OUTLINE

T – Theory

Unit	Time (Hrs)	Learning Outcomes	Content	Teaching/ Learning Activities	Assessment Methods
I	2 (T)	Explain nature, principles and perspectives of heredity	Introduction: <ul style="list-style-type: none"> • 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 • Patterns of inheritance • Mendelian theory of inheritance • Multiple allots and blood groups • Sex linked inheritance • Mechanism of inheritance • Errors in transmission (mutation) 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides 	<ul style="list-style-type: none"> • Short answer • Objective type
II	2 (T)	Explain maternal, prenatal and genetic influences on development of defects and diseases	Maternal, prenatal and genetic influences on development of defects and diseases <ul style="list-style-type: none"> • Conditions affecting the mother: genetic and infections • Consanguinity atopy • Prenatal nutrition and food allergies • Maternal age 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides 	<ul style="list-style-type: none"> • Short answer • Objective type
			<ul style="list-style-type: none"> • 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	2 (T)	Explain the screening methods for genetic defects and diseases in neonates and children	Genetic testing in the neonates and children <ul style="list-style-type: none"> • Screening for <ul style="list-style-type: none"> ○ Congenital abnormalities ○ Developmental delay ○ Dysmorphism 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides 	<ul style="list-style-type: none"> • Short answer • Objective type

IV	2 (T)	Identify genetic disorders in adolescents and adults	Genetic conditions of adolescents and adults <ul style="list-style-type: none"> • Cancer genetics: Familial cancer • Inborn errors of metabolism • Blood group alleles and hematological disorder • Genetic haemochromatosis • Huntington's disease • Mental illness 	<ul style="list-style-type: none"> • Lecture • Discussion • Explain using slides 	<ul style="list-style-type: none"> • Short answer • Objective type
V	2 (T)	Describe the role of nurse in genetic services and counselling	Services related to genetics <ul style="list-style-type: none"> • Genetic testing • Gene therapy • Genetic counseling • Legal and Ethical issues • Role of nurse 	<ul style="list-style-type: none"> • Lecture • Discussion 	<ul style="list-style-type: none"> • Short answer • Objective type

Bibliography –(Genetics)

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7. Edmund W Sinnott : Principles of Genetics V Edition Mcgeaw hill book company, Newyork 1950.
8. P C Winter, G I Hickey : Instant notes in genetics , Viva books Pvt Ltd, New Delhi 2000.
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