

SEMESTER II

Paper DLTO 01: Clinical Genetics II

THEORY

Module 1:

- Molecular genetic techniques used in genetic diagnosis: Blotting techniques – Southern, Northern and Western, PCR / RFLP, FISH, DNA sequencing & DNA fingerprinting.
- Genetics of Cancer: introduction, characteristics of cancer cells, origin of cancer cells, genes associated with cancer, environmental causes of cancer, human genome data tailor diagnosis and treatment.
- Dermatoglyphics: Introduction, classification, Flexion creases. Dermatoglyphics in clinical disorders, Clinical application & its advantages and limitations.

Module 2:

- Reproductive technologies: infertility and subfertility, assisted reproductive technologies (IUI, surrogate motherhood, IVF, GZIT, ZIFT), preimplantation genetic diagnosis.
- Genetics and Society : (i) Human genome project : (ii) Forensic science (iii) DNA finger printing application (iv) Gene therapy (v) Eugenics. vi) Stem cell research.

Module 3:

- Prenatal Diagnosis: Definition: Various procedures - Amniocentesis, Chorionic villus sampling, Ultrasonography and Fetoscopy.
- Genetic Counselling (Stage1: History and Pedigree Construction, Stage 2: Examination, Stage 3: Diagnosis, Stage 4: Counselling; and Stage 5: Follow up).

PRACTICALS

1) Introduction to molecular genetic lab: general rules, handling of chemicals, equipments and biological materials; waste disposal.

2) Isolation of DNA from human blood.

3) Determination of molecular size of DNA.

- 6) Analysis of DNA fingerprints and FISH images.
- 7) Manual DNA sequencing and data analysis.
- 8) Dermatoglyphics: Recording of print of fingertips and palm.
- 9) Amniotic fluid culture: Flask method and Cover slip method.
- 10) Chorionic villi culture: Short term culture
- 11) Chromosomal analysis from product of conception (abortus study)
- 12) Disease suspicion by spot tests: Fanconis syndrome, PKU, maple syrup urine disease, Tryptophanuria.

Paper DLT O02 Clinical Biochemistry II

THEORY

Module 1

- Carbohydrate metabolism: Clinical aspects of Regulation of Blood sugar and Diabetes
- Protein metabolism: starvation, and protein energy malnutrition
- Lipid metabolism Clinical aspects of lipid profile, arteriosclerosis.

Module 2 & 3

- Gastric function tests.
- Pancreatic function tests.
- Liver function tests.
- Thyroid function tests.
- Cardiac function test
- Kidney function test

PRACTICALS

1. Chemistry of saliva.
2. Chemistry of gastric juices
3. Estimation of bilirubin.
4. Estimation of glucose in blood. GTT and its interpretation