M.Sc., I SEMESTER –Soft Core Paper:2

HISTOLOGY AND HISTOPATHOLOGY

48 Hrs

UNIT – I **08Hrs**

A)Histology :Histochemistry and Histopathology : Objectives and applications

B)Tissue fixation : Objectives, methods, chemical fixatives-types and chemistry of fixation; Physical methods-:freezing and microwave fixation; choice of fixatives, fixation artifacts.

C) Dyes. –Natural and Synthetic, Classification

UNIT-II **08 Hrs**

Functional Morphology (mammalian) : Histological organization of GI tract- stomach and intestine, lungs, kidney, spleen, thymus, Bone and bone marrow.

Unit-III **08 Hrs**

Histochemistry

Principles and methods of application and utility of classical histochemical Techniques : for localization of glycoproteins (PAS), nucleic acids(Feulgen) and steroid dehydrogenase activity.

Unit-IV **08 Hrs**

Immunohistochemistry

Principles, method of application of Imunohistochemistry and immunofluorescence techniques for localization of proteins in endocrine cells (Pituitary cell types or islet of Langherhans)

In situ hybridization of nucleic acids

UNIT-V **08 Hrs**

Histopathology

Morphological alterations in cells due to disease, types of degeneration-clouding, hyaline, hydrophic and fatty degeneration.

Etiology, pathogenesis and histopathology of Liver cirrhosis and atheroscelerosis, Neuropathology of alcoholism and methanol poisioning.

Unit-VI **08 Hrs**

Histopathology

Tumors- malignant and non-malignant, types of carcinoma, histopathology of breast and prostate tumors

PRACTICALS **2x8= 16 Hrs**

I. Histology:

1. Microtomy and staining: Hematoxylin-eosin - **Demonstration** **2x2=4 hrs**

2. Histology: **2x2=4 hrs**

Observations of permanent slides of mammalian organs – stomach, intestine, spleen, liver, kidney, lungs, testis, epididymis, vas deferens, ventral prostate, seminal vesicle, ovary, uterus and Fallopian tube.

II. Histometry: **2x1=2hrs**

Histometrical measurements of a few organs.

III. Histopathology: **2x1=2hrs**

Study of histopathological changes (permanent slides) – gastric ulcers, cirrhosis of liver, breast tumors, cyctic follicles of ovary, pancreas in diabetics, cryptorchid testis and leukemia.

IV. Histochemistry: Observation

1.Histochemical localization of glycogen in rat/mouse liver by Bauer Feulgen technique. **2x1=2 hrs**

2. Histochemical localization of proteins in rat/mouse thyroid by Mercury bromophenol blue method. **2x1=2 hrs**

REFERENCES:

1.Boyd,W. 1976:A text book of Pathology. Structure and function in disease, 4th edition. Lea and Fibiger, Philadephia.

2.Pearse, A.G.E. (1980): Histochemistry, theoretical and Applied ,J & A, Churchill Ltd., London.

3.Rogers, A.W.(1983): Cells and Tissues, An introduction to Histology and Cell Biology, Academic Press, NY.

4.Telford, I.R. and Bridgman,C.F.(1990). Introduction to Functional Histology, Harper and Row, NY.