VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT.

F.Y. M.B.B.S.

C) MICROANATOMY

I) GENERAL HISTOLOGY

i) MICROSCOPE,

Light microscope: parts, magnification, resolution,Electron microscope,
Level 2 Micro techniques, H and E staining
Level 3: Polarizing microscope, phase contrast, scanning EM

ii) CYTOLOGY

Cell,Cytoplasm and nucleus,Cytomembranes,Unit membrane, **Cell organelles**
Mitochondrial DNA, mitochondrial myopathy

Level 2 Specialisations of cell surface, Sarcoplasmic reticulum of muscle, Primary and secondary lysosomes, residual bodies, Effect of colchicine and anticytotic drugs on spindles preventing mitosis, Endocytosis, exocytosis, movement of microvilli; Cell mitotic activity
Level 3 Lysosomal storage disease
NUCLEUS - Structure, nuclear envelope, chromatin, Barr body, nucleolus

iii) Epithelial

Definition, Classification, Structure of various types & subtypes of epithelia
Level 2: Nutrition, Renewal, Innervation,
Level 3: Metaplasia;
Surface modifications,Cilia; Microvilli; Stereocilia; Cell junction and junctional complexes;
Glands, Classification; Unicellular and Multicellular; Exocrine, Endocrine, Amphicrine. Exocrine: Simple, Compound; Apocrine, Merocrine, Holocrine; Tubular, alveolar, tubuloalveolar; Serous; Mucous ; Mixed

iv) Connective tissue, classification, structure, fibres, ground substance, loose areolar tissue, adipose tissue
Level 2 : Glycosaminoglycans
Level 3 : Scurvy, oedema, inflammation

v) Bone & Cartilage

Bone, Compact, Cancellous, Developing bone; ossification, Woven, lamellar bone

Cartilage, Classification, types, Perichondrium, functions
Level 2: Growth: Interstitial, Appositional; Bone callus, Osteomalacia , Osteoporosis , Osteoma
Level 3: Chondroma

vi) Muscle
Skeletal muscle Plain muscle Cardiac muscle Intercalated disc, syncitium; Sarcomere, I and A bands, myofibrils, myofilaments,; Sarcoplasmic reticulum,
Level 2: Innervation, Red fibres, white fibres
Level 3: Hypertrophy, Hyperplasia ,Rigor mortis , Myasthenia gravis

vii) Nervous
Neurons, types; Neuroglia, types; Myelinated nerve fibre *LS*; Non-myelinated nerve fibre; Peripheral nerve ; Nodes of Ranvier; Synapses;

viii) Vessels
Large sized artery Medium sized artery, Arteriole; Capillary, Sinusoid; Medium sized vein;
Level 2: Atherosclerosis, Aneurysm, Infarcts, clotting
Lymphoid tissue
T cells, B cells; Mucosa Associated Lymphoid Tissue; Humoral immunity, Cell mediated immunity; Lymph node *section*; Thymus, Spleen, Tonsil
Level 2: Blood-thymus barrier, Open and closed circulation in the spleen
Level 3: Organ transplantation, Graft rejection, Autoimmune disease

II) SYSTEMIC HISTOLOGY

Basic organization, salient features, Identification
Structure and function correlation, individual features

i) Integumentary system
Skin - Types; Epidermis and dermis; various cells, Appendages of skin
Level 2: Renewal of epidermis
Level 3: Albinism, melanoma, Acne

ii) Alimentary system
a) Oral tissues
Lip, Tongue, taste buds, Papillae; Tooth, Developing tooth, Salivary glands
Level 2: Striated duct, ion transport
b) GI Tract
Basic organization - 4 layers; Oesophagus with glands Stomach - Fundus, Chief cells, Parietal cells, intrinsic factor; Stomach -

Pylorus Duodenum Brunner's glands; Small intestine - with Peyer's patch, Appendix, Large intestine
Level 3: Pernicious anaemia, ulcer, gastritis, Hirschsprung's disease or megacolon

c) Glands

Pancreas: Exocrine, islets of Langerhans; Liver, Hepatic lobule, portal lobule,; portal acinus; Gall bladder
Level 2: Liver as an endocrine gland
Level 3: Diabetes mellitus, Cirrhosis of liver, liver regeneration, Chalones

iii) Respiratory system

Olfactory mucosa; Epiglottis; Trachea, Lung, Bronchus, bronchiole, alveolar duct, sac, alveoli, pulmonary type I and II cells
Level 2: Double spirally arranged bronchial smooth muscle
Level 3: Bronchial asthma, Hyaline membrane disease, Heart failure cells

iv) Urinary system

Basic organization; Nephron - Parts, podocytes, Collecting system; Kidney - Cortex, Medulla Ureter; Urinary bladder, Urethra
Level 2: Juxtaglomerular apparatus

v) Male reproductive system

Basic organization; Gonads, Tract, Accessory glands; Testis; Epididymis ; Vas deferens; Prostate ; Penis; Seminal vesicle
Level 2: Stages of spermatogenesis
Level 3: Immotile sperm

Female reproductive system

Basic organization; Gonads, Tracts, Accessory glands; ; Ovary - with corpus luteum; Fallopian tube; Uterus ; Cervix; Vagina, Mammary gland Active , Passive
Level 2: Stages of maturation of ovarian follicle , Phases of menstruation Colostrum, IgA, Placenta : Maternal unit, Foetal unit, Umbilical cord**:** Wharton's jelly

vi) Endocrine system:

Pituitary; Adenohypophysis; Neurohypophysis; Thyroid ; Follicular, parafollicular cells; Parathyroid ; Chief cells, oxyphil cells; Adrenal; Pancreas; Testis ; Ovary
Level 2: Hypothalamo-pituitary Portal system
Level 3: Pheochromocytoma

vii) Nervous system

A. Central

Basic organization; Cerebrum; Cerebellum; Spinal cord; Cervical; Thoracic; Lumbar; Sacral;

B. Peripheral

Sensory ganglia; Autonomic ganglia (sympathetic ganglion); Peripheral nerve

Special senses

I. Visual: Eyeball

Cornea ; Sclerocorneal junction ; Canal of Schlemm; Lens ; Retina ; Optic nerve

Level 3: Kerattoplasty, eye donation, glaucoma, retinal detachment

2. Auditory:

Internal ear; Cochlea ; Semicircular canals; Vestibule;

3. Olfactory

Nasal cavity

4. Gustatory

Tongue with taste buds