

First B.O.Th. Year

B.O.Th. :103. BIOCHEMISTRY & PHARMACOLOGY

Total hours 100(50 Biochemistry + 50 Pharmacology)

Theory Examinations : Uni. External Exam. 70 + Int. assessment 30) = 100 marks

Biochemistry

Course Objective: The students should be able to

- 1) Describe normal functions of different components of food, enzymes, discuss in brief factors affecting enzyme activity.
- 2) Define Basal metabolic rate & factors affecting the same [in brier], with special reference to obesity.
- 3) Explain nutritional aspects of carbohydrates, lipids proteins & vitamins & their metabolism.
- 4) Describe in details biochemical aspects of muscle contraction.
- 5) Understand different aspects of nucleic acid.
- 6) Acquire knowledge in brief about the Clinical biochemistry, with special reference to Liver & renal function test, Blood study for Lipid profile, metabolism of fat, Carbohydrates, proteins, bone minerals, & electrolyte balance.

Biochemistry Syllabus : (50 marks) (50 hrs)

- 1) **CARBOHYDRATES**.....(09 hrs)
 - a) Chemistry, Definition, classification with examples, functions.
 - b) Digestion and Absorption, glycogenesis, glycolysis, TCA cycle. Hormonal regulation of blood glucose, diabetes mellitus, glycosuria, changes in Carbohydrate , protein & lipid metabolism.
- 2) **PROTEINS**(05 hrs)

Definition, Importance, Functional / Classification, Digestion & Absorption, decarboxylation, deamination, transamination, transmethylation, Urea cycle, clinical significance of serum urea, function of glycine, Phenylalanine, tryptophan, methionine tyrosine.
- 3) **ENZYMES**(05 hrs)

Definition, Modern Classification, Factors affecting enzymes Action, diagnostic & therapeutics uses & enzymes, iso-Enzymes, competitive & Non competitive inhibition.
- 4) **VITAMINS**(04 hrs)

Definition, Classification, Fat & water soluble vitamins, functions, b'efficiency manifestations sources & RDA
- 5) **MINERALS**(04 hrs)

Ca, P, Fe, I Zinc, Selenium, Fluorine, Magnesium, Function sources, Deficiency manifestations.
- 6) **HORMONES**.....(02 hrs)

Definition with mechanism of action, classification

- 7) **NUTRITION**.....(04 hrs)
Composition of food, balanced diet, kwashiorkor, marasmus, nitrogen balance, major dietary constituent & their basal metabolic rate, factors affecting, BMR & their importance.
- 8) **Clinical Biochemistry**(04 hrs)
Liver function test, kidney function test, Lipid profile in serum.
- 9) **LIPID**.....(06 hrs)
Definition, classification with examples, biomedical importance, Phospholipids & lipoproteins functions. Digestion & absorption of lipid B — oxidation of fatty acid with energetic, Ketone bodies and their metabolism, cholesterol, importance of cholesterol, obesity.
- 10) **Muscle Contraction**..... (02 hrs)
Mechanism & Biochemical, events
- 11) **NUCLEIC ACID**..... (03 hrs)
Function of DNA, RNA, genetic code specialized products of amino acids phenylalanine, tryptophan, glycine, methionine. Transamination, deamination and urea cycle (protein)
- 12) **Clinical Significance of some important biochemical constituents in serum in various diseases**..... (03 hrs)

TEXT BOOKS :-

Medical Biochemistry: **U. Satyanarayan**
Biochemistry : **Dr. Vasudev**

REFERENCE BOOKS

Biochemistry (2nd edition) by Dr.Pankaja Naik

Pharmacology

Objectives — At the end of the *course* the candidate will be able to —

- 1] Describe Pharmacological effects of commonly used drugs by patients referred for Occupational Therapy, list their adverse reactions, precautions to be taken & contraindications. formulation & route of administration.
- 2] identify whether the pharmacological effect of the drug interferes with the Therapeutic response of Occupational Therapy & vis-a-versa
- 3] indicate the use of analgesics & anti-inflammatory agents with movement disorders with consideration of cost, efficiency, & safety for individual needs.
- 4] get the awareness of other essential & commonly used drugs by patients- The bases for their use & common as well as serious adverse reactions.

Pharmacology Syllabus: (50 marks)

(50 hrs)

A) MUST KNOW —

- i. Drugs described *in* topics 2 to 9;
- ii. Pharmacological effects & mechanism, Formulation, Route of administration, salient Pharma-kinetic feature,
- iii. adverse Reactions:
- iv. Precautions & contra-indications.

B) DESIRABLE

- i. Major group of drugs described in topics 10, 11 & 12
- ii. bases of use in indicated conditions;
- iii. Common & serious Adverse Reactions

TOPICS -

- 1] General pharmacology5 hrs
- Drug Pharmco-kinetics — Pharmacology — adverse reaction — factors modifying drug effect
- 2] Drug activity of CNS..... 7 hrs
- Introduction [1hr] alcohols + Sedatives & hypnotics [2hrs], Anti-convulsions [1hrs] Analgesics & antipyretics — specially Gout & R.A. [3 hrs] Psycho Therapeutics [1] ;General anesthetic + local anesthetic [1hr]
- 3] Drugs acting on peripheral nervous system..... 5 hrs
i]Adrenergic [1hr]; ii] Cholinergic [1hr]
- 4] Drug therapy in Parkinsonism..... 2 hr
- 5] Skeletal muscle relaxants2 hr
- 6] Drugs acting on CVS.....6hrs
i] Hyper tension iii B-blockers, iii] Ca channel ACEI, iv] blockers [prazosin] [1hr], Diuretics [1hr] CCF — [1hr] Angina [1hr] Antiarrhythmia + Shock [1 hr], Drug satisfying Homeostasis [1hr]
- 7] Drugs acting on Respiratory system 4 hrs
for upper respiratory tract infections sinusitis — cough, laryngitis, pharyngitis [2 hr], For
Bronchial asthma - [1 hr] for COPD - effects of prolonged drug administration [1 hr]
- 8] Insulin [1hr] & oral anti-diabetic drugs [1hr]2 hrs
- 9] Chemo—therapy..... 3hrs
i) general principles [1hr], ii] anti Tuberculosis [1 hr] , & iii] anti —leprosy [1 hr]
- 10] Other Chemo Therapeutic drugs.....2 hrs
i] Sulfa drugs in urinary tract infection, ii] tetra I chiora, iii] penicillin
iv] cephalosporin, v] aminoglycicies, vi] Microlytic
- 11] Endocrine.....4hrs
i] introduction, Thyroid & Antithyroid [1hr]; ii] Estrogen + Progesterone [1] iii] steroids anabolic steroids [2hrs]
- 12] Drugs in G.I tract.....4hrs
i] Peptic ulcer + antiemetic [3hrs], ii] Diarrhoea & constipation [1hr]

- 13] Heamatinics, Vitamin B: Iron 1 hrs
- 14] Dermatological --- Scabies — Psoriasis — Local antifungal.....1 hrs
- 15] Vaccines & Sera.....1 hrs
- 16] Vitamin -D, Calcium, Phosphorus, Magnesium.....1 hrs.

TEXT BOOKS

- 1] Pharmacology by Gaddum
- 2] Medical Pharmacology by Drill
- 3] Pharmacology principle of Medical practice — by Krantx, & Carr
- 4] Pharmacologica! basis of Therapeutics — by Goodman, L.S. Gilman A