

## BP501T. MEDICINAL CHEMISTRY – II (Theory)

45 Hours

### Course Content:

Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs superscripted (\*).

#### Unit-I

10 Hours

**Antihistaminic agents:** Histamine, receptors and their distribution in the human body.

**H<sub>1</sub>-antagonist:** Diphenhydramine hydrochloride\*, Dimenhydrinate, Doxylamine succinate, Clemastine fumarate, Diphenylpyraline hydrochloride, Triphelenamine hydrochloride, Chlorcyclizine hydrochloride, Meclizine hydrochloride, Buclizine hydrochloride, Chlorpheniramine maleate, Triprolidine hydrochloride\*, Phenidamine tartrate, Promethazine hydrochloride\*, Trimeprazine tartrate, Cyproheptadine hydrochloride, Azatidine maleate, Astemizole, Loratadine, Cetirizine, Levocetirizine Cromolyn sodium.

**H<sub>2</sub>-antagonists:** Cimetidine\*, Famotidine, Ranitidine.

**Gastric proton-pump inhibitors:** Omeprazole, Lansoprazole, Rabeprazole, Pantoprazole.

**Anti-neoplastic agents:**

**Alkylating agents:** Meclorothamine\*, Cyclophosphamide, Melphalan, Chlorambucil, Busulfan, Thiotepa.

**Antimetabolites:** Mercaptopurine\*, Thioguanine, Fluorouracil, Floxuridine, Cytarabine, Methotrexate\*, Azathioprine.

**Antibiotics:** Dactinomycin, Daunorubicin, Doxorubicin, Bleomycin.

**Plant products:** Etoposide, Vinblastine sulphate, Vincristine sulphate.

**Miscellaneous:** Cisplatin, Mitotane.

#### Unit-II

10 Hours

**Anti-anginal:** Vasodilators: Amyl Nitrite, Nitroglycerin\*, Pentaerythritol tetranitrate, Isosorbide dinitrite\*, Dipyridamole.

Calcium channel blockers: Verapamil, Bepridil hydrochloride, Diltiazem hydrochloride, Nifedipine, Amlodipine, Felodipine, Nicardipine, Nimodipine.

**Diuretics:** Carbonic Anhydrase Inhibitors: Acetazolamide\*, Methazolamide, Dichlorphenamide.

Thiazides: Chlorthiazide\*, Hydrochlorothiazide, Hydroflumethiazide, Cyclothiazide,

Loop Diuretics: Furosemide\*, Bumetanide, Ethacrynic acid.

Potassium sparing Diuretics: Spironolactone, Triamterene, Amiloride. Osmotic Diuretics: Mannitol.

**Anti-hypertensive Agents:** Timolol, Captopril, Lisinopril, Enalapril, Benazepril hydrochloride, Quinapril Hydrochloride, Methyldopate Hydrochloride\* Clonidine hydrochloride, Guanethidine Monosulphate, Guanabenz Acetate, Sodium Nitroprusside, Diazoxide, Minoxidil, Reserpine, Hydralazine hydrochloride.

### **Unit-III**

**10 Hours**

**Anti-arrhythmic Drugs:** Quinidine Sulphate, Procainamide Hydrochloride, Disopyramide Phosphate\*, Phenytoin Sodium, Lidocaine Hydrochloride, Tocainide Hydrochloride, Mexiletine Hydrochloride, Lorcaïnide Hydrochloride, Amiodarone, Sotalol.

**Anti-hyperlipidemic agents:** Clofibrate, Lovastatin, Cholestyramine and Colestipol.

**Coagulant & Anticoagulants:** Menadione, Acetomenadione, Warfarin\*, Anisindione, Clopidogrel.

**Drugs used in Congestive Heart Failure:** Digoxin, Digitoxin, Nesiritide, Bosentan, Tezosentan.

### **Unit-IV**

**08 Hours**

**Drugs acting on Endocrine system:** Nomenclature, Stereochemistry and metabolism of steroids.

**Sex hormones:** Testosterone, Andralone, Progesterones, Oestriol, Oestradiol, Oestrione, Diethyl Stilbestrol.

**Drugs for erectile dysfunction:** Sildenafil, Tadalafil.

**Oral contraceptives:** Mifepristone, Norgestrel, Levonorgestrel

**Corticosteroids:** Cortisone, Hydrocortisone, Prednisolone, Betamethasone, Dexamethasone.

**Thyroid and antithyroid drugs:** L-Thyroxine, L-Thyronine, Propylthiouracil, Methimazole.

### **Unit-V**

**07 Hours**

**Antidiabetic agents:** Insulin and its preparations.

Sulfonylureas: Tolbutamide\*, Chlorpropamide, Glipizide, Glimepiride.

Biguanides: Metformin.

Thiazolidinediones: Pioglitazone, Rosiglitazone, Meglitinides, Repaglinide, Nateglinide.

Glucosidase inhibitors: Acarbose, Voglibose.

**Local Anesthetics:** SAR of Local anesthetics.

Benzoic acid derivatives; Cocaine, Hexylcaine, Meprylcaine, Cyclomethycaine, Piperocaine.

Amino Benzoic acid derivatives: Benzocaine\*, Butamben, Procaine\*, Butacaine, Propoxycaine, Tetracaine, Benoxinate.

Lidocaine/Anilide derivatives: Lignocaine, Mepivacaine, Prilocaine, Etidocaine.

Miscellaneous: Phenacaine, Dipiperodon, Dibucaine.