

- N.B. :** (1) Question No.1 is **compulsory**.
(2) Attempt any **four** questions from the remaining **six** questions.

1. (a) Draw neat structures and mention the therapeutic use for the following :- 4
 - (i) 2,4-Diamino-6-(1-piperidino) pyrimidine-3-oxide.
 - (ii) 3-(1-pyrrolidiny)- α -phenyl- α -cyclohexyl propanol.
 - (iii) 1-(4-carbamoyl methyl phenoxy)-3-isopropylamino-2-propanol.
 - (iv) Ethyl 2-(4-chlorophenoxy) 2-methyl propanoate.
- (b) Draw neat structures and state the therapeutic use for the following :- 4
 - (i) A non-chassic acetyl cholinesterase inhibitor.
 - (ii) An alpha-2 adrenergic agonist belonging to phenylethanolamine class.
 - (iii) A muscarinic agonist isolated from natural sources and used for pupillary contraction.
 - (iv) A neuronal blocking agent containing a guanidino group.
2. (a) Give specific reasons and support your answer with structure for the following :- 6
 - (i) Sotalol acts both as an antihypertensive and as an antiarrhythmic.
 - (ii) 2,6-Dichlorosubstitution on phenyl ring in clonidine is important for activity.
 - (iii) Enalapril has less zinc binding ability and yet is more potent than captopril.
 - (iv) (R)-isomers of adrenergic stimulants belonging to phenylethanolamine class are more potent.
- (b) What are cardioselective beta adrenergic blockers ? Discuss their essential structural features and their advantages. 2
3. (a) Give the schematic synthesis of any **two** and specify reactant names and reaction conditions :- 6
 - (i) Terbutaline
 - (ii) Captopril
 - (iii) Neostigmine.
- (b) Write a note on alpha-1 adrenergic antagonists. 2
4. (a) Give the schematic metabolism of any **three** and label the metabolites as active/inactive :- 6
 - (i) Physostigmine
 - (ii) Gemfibrazil
 - (iii) Propranolol
 - (iv) Nifedipine.
- (b) Discuss the role of organic nitrates in angina and give the structure of a long acting organic nitrate. 2
5. (a) Discuss the significance of lowering lipids and cholesterol and describe the development of statins. Give the structure of one statin used in therapy. 4
- (b) Write a note on therapeutically useful acetylcholinesterase inhibitors. 4
6. (a) Write a note on beta adrenergic stimulants used in therapy and their development. 4
- (b) Classify calcium channel blockers and give one structure for each class and discuss their therapeutic uses. 4
7. (a) Write notes on any **two** of the following :- 6
 - (i) Important sodium channel blockers
 - (ii) ACE Inhibitors
 - (iii) Alzheimer's disease.
- (b) Discuss the therapeutic uses of neuromuscular blocking agents and give one example. 2
