

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

1. (a) Write the structure, generic name and major therapeutic use for the following (any **three**) :— 6
  - (i) Ethyl 2-(4-chlorophenoxy)-2-methylpropanoate
  - (ii) 1, 2, 3, 4-tetrahydro-9-aminoacridine
  - (iii) 4'-[1-hydroxy-2-(isopropylamino)ethyl]methylsulfonamide
  - (iv) N, 2, 3, 3-tetramethyl-2-norbornanamine hydrochloride
- (b) Write the structure, generic name and major therapeutic use of the drugs with the following description (any **two**) :— 2
  - (i) A direct acting vasodilator
  - (ii) An adrenergic neuron blocking agent containing guanidine.
  - (iii) A depolarising neuromuscular blocking agent of the bis quaternary ammonium compound class.
2. Explain the following statements. Support your answer with relevant structures :— 8
  - (a) Pralidoxime is ineffective if administered 36 hours after the exposure to insecticide.
  - (b) Succinylcholine chloride produces short duration of neuromuscular blockade.
  - (c) Enalapril, a prodrug, has a better bioavailability as compared to Enalaprilat.
  - (d) Replacement of catechol ring by resorcinol imparts oral bioavailability to  $\beta$ -agonists.
3. (a) Give schematic synthesis of the following, specifying the names of the reactants and reaction conditions (any **two**) :— 6
  - (i) Captopril
  - (ii) Propranolol
  - (iii) Nifedipine.
- (b) Write the structure of one active metabolite of each of the following :— 2
  - (i) Lovastatin
  - (ii) Losartan.
4. (a) Give schematic metabolism of the following drugs and label the metabolites as active / inactive (any **two**) :— 4
  - (i) Captopril
  - (ii) Verapamil
  - (iii) Gemfibrozil.
- (b) Classify antiarrhythmic drugs on the basis of their mechanisms of action. Give examples of drugs belonging to each subclass. 4
5. (a) Explain the structure Activity Relationship of Angiotensin - II Receptor antagonists. Support your answer with relevant structures. 4
- (b) Explain the development of  $\beta$ -blockers from dichloroisoproterenol. Discuss the similarities between aryloxypropanolamines and aryloethanolamines. 4
6. (a) Discuss the Mechanisms of action of — 4
  - (i) HMG-CoA Reductase Inhibitors
  - (ii) Organic nitrates.
- (b) Explain why acetylcholine is a poor therapeutic agent. Outline the structural modifications in acetylcholine which resulted in therapeutically useful drugs with agonistic activity at the muscarinic receptor. 4
7. Write short notes on any **two** of the following :— 8
  - (a) Alpha adrenergic antagonists
  - (b) Angiotensin Converting Enzyme Inhibitors
  - (c) Alzheimer's Disease and its Treatment.