

Fourth Semester M.Sc. Degree Examination,  
September/October 2020

(CBCS Scheme)

Chemistry

Paper C 404 OC — MEDICINAL ORGANIC CHEMISTRY

Time : 3 Hours]

[Max. Marks : 70

Instructions to Candidates : Answer Question No. 1 and any FIVE of the remaining questions.

1. Answer any **TEN** of the following : (10 × 2 = 20)
- (a) Write the Hansch equation and highlight its importance.
  - (b) Draw the structure of cholesterol and number the carbons.
  - (c) Why is streptidine unit basic and shows zero optical activity?
  - (d) Convert terramycin to anhydroterramycin.
  - (e) Define anti-virals. Give examples. Expand the term COVID-19.
  - (f) Sketch a synthesis of metformin. Indicate its therapeutic capacity.
  - (g) How is chlorobenzene converted to dapsone?
  - (h) Give an example for a hypnotic/sedative. Outline its mode of action.
  - (i) Outline a synthesis of phenytoin. Mention its utility.
  - (j) Indicate the structural differences between sterols and vitamins = D.
  - (k) Give a synthesis of cyclophosphamide.
  - (l) With structure, give an example for a naturally occurring antifungal agent.
2. (a) Discuss Clarks theory of drug-receptor interactions. Mention the drawbacks of the theory.
- (b) Describe the determination of the size of ring-A of cholesterol.
- (c) Citing examples differentiate between homo- and nor-steroids. (4 + 3 + 3)
- (a) Outline the structural elucidation of penicillins.
- (b) Sketch the synthesis of chloromyecetin.
- (c) Convert aureomycin to tetracycline. (4 + 3 + 3)

**Q.P. Code : 60790**

4. (a) Define anti-diabetics. Briefly discuss the structure of insulin. Write the sequence of amino acids in the A- and B- chains of insulin. Mark the amino acids which connect the two chains and mention the heavy metal associated with insulin.
- (b) Describe the mode of actions of vinblastine and taxol. (4 + 3 + 3)
- (c) How is glucose converted to sorbitrate?
5. (a) Describe the synthesis of chloroquine. Highlight the structural differences between chloroquine and hydroxychloroquine.
- (b) Citing examples, discuss the SAR of anti-epileptic drugs.
- (c) What are butyrophenones? Give their general structure and utility. (4 + 3 + 3)
6. (a) Outline Marker's degradation. Highlight the importance of Marker's findings.
- (b) How did Woodward infer that aureomycin was a tetracycline antibiotic? Explain.
- (c) Define oral contraceptives. Give examples and discuss their mode of therapeutic action. (4 + 3 + 3)
- (a) Sketch the synthesis of quinidine from ethyl quininate.
- (b) Discuss Johnson's synthesis of aldosterone.
- (c) Formulate the synthesis and outline the mode of action of chlorpheniramine. (4 + 3 + 3)

Write short notes on :

- (a) Molecular modeling and computer aided-drug design.
- (b) Anti-hypertensives and their mode of action.
- (c) Highlight the various stages of DOTS treatment of tuberculosis. (4 + 3 + 3)
-