

AE-764

M. Sc. (Final)

Term End Examination, 2016-17

CHEMISTRY

Optional

Group - B

Paper - III

Chemistry of Natural Products and Medicinal Chemistry

Time : Three Hours] [Maximum Marks : 100

[Minimum Pass Marks : 36

Note : Answer any **five** questions. The figures in the right-hand margin indicate marks.

1. (a) How would you proceed to detect (i) unsaturation (ii) and isopropylidene grouping in an unknown terpenoid? 10
- (b) What are carotenoids? How will you prove that β carotene has a symmetrical structure? Give the synthesis of carotene. 10

(2)

2. (a) What are alkaloids ? How are they classified ? 5
- (b) How are alkaloids isolated from plant materials ? 5
- (c) What methods are employed for determining the structure of an alkaloids ? 10
3. (a) What are steroids ? 5
- (b) Discuss the relationship between sterols and bile acids. 5
- (c) How are the positions of a double bond and hydroxyl group in a sterol determined ? Illustrate your answer giving suitable examples. 10
4. Write notes on the following : 5×4
- (a) Hirsutidin biosynthesis of flavonoids
- (b) Biosynthesis of steroids
- (c) Acetate pathway and shikimic acid pathway
- (d) 5β-cholanic and 5d-cholanic acid
5. Explain with examples : 5×4
- (a) Isoprene rule
- (b) Role of alkaloids in plants
- (c) Diels hydrocarbons and stereochemistry
- (d) Glycosides of flavones and flavonols

(3)

6. Explain the following :
- (a) Distribution and disposition of drugs excretion and elimination 6
 - (b) Drug Absorption 4
 - (c) Pharmacokinetics of elimination 6
 - (d) Pharmacokinetics in drug development process 4
7. Explain any **four** of the following : 5×4
- (a) Mechanism of tumor formation
 - (b) Role of alkylating agents in treatment of cancer
 - (c) Synthesis of uracil
 - (d) Recent development in cancer chemotherapy
 - (e) Hormones and DNA intercalating agents
8. Describe syntheses of the following : 5×4
- (a) Verapamil
 - (b) Sorbitrate
 - (c) Quiridine
 - (d) Methyldopa

(4)

9. Write notes on the following : 5×4

- (a) Classification of local anti-infective drugs with examples
- (b) General mode of action in various drugs
- (c) PAS
- (d) Chloroquine and primaquine

10. Explain the following : 5×4

- (a) Various stages of Anaesthesia
 - (b) Techniques of inhalation of Anaesthetics
 - (c) Classification and mechanism of antidepressants
 - (d) Classification of various antibiotics with examples
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