

2022
M.Sc.
Fourth Semester
DISCIPLINE SPECIFIC ELECTIVE – 03
CHEMISTRY
Course Code: MCHD 4.11 (B)
(Applied Organic Chemistry)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. (a) Discuss the toxic chemical in the environment. 4
- (b) Discuss biochemical effect of mercury. 5
- (c) Explain in detail any two water quality parameters in the analysis of water quality. 5

2. (a) Explain the different forms of iron present in water. Discuss any two methods of iron removal from water. 6
- (b) What is soil contamination? Discuss soil remediation and the environment. 6
- (c) Explain incineration in the treatment of municipal waste. 2

UNIT-II

3. (a) What is atom economy? Calculate the percentage atom economy of the following reactions. 8
 - (i) Ethanol on heating gives ethene and water
 - (ii) Acetic acid reacts with ethanol to give ethyl acetate and water
 - (b) Illustrate the green chemistry principle “Design for degradation” by taking the example of designing biodegradable soap. 6

 4. (a) What do you understand by green chemistry? Discuss the following two principles of green chemistry with suitable illustrations.
 - (i) Use of renewable feed stocks
 - (ii) Green catalyst
- 2+4+4=10

- (b) Catalytic reagents are superior to stoichiometric reagent. Justify on the principle of green chemistry. 4

UNIT-III

5. (a) Explain special features of polymerization. 5
(b) Explain coordination polymerization with mechanism 5
(c) Explain polymerization techniques. 4
6. (a) Explain stereochemistry of polymers. 5
(b) Explain ring opening polymerization with mechanism 5
(b) Explain free radical polymerization with mechanism. 4

UNIT-IV

7. (a) What are drugs? Discuss drug metabolism. 7
(b) What are lead compounds and lead modification? Discuss in brief. 7
8. (a) What are pro drugs and soft drugs? Discuss their role in curing diseases. 5
(b) Discuss in brief about structure reactivity relationship (SAR). 6
(c) Discuss the term elimination of drugs. 3

UNIT-V

9. (a) Draw the structure of purine and pyrimidine bases and give the biosynthesis of adenine starting from ribose-5-phosphate and ATP. 7
(b) Discuss primary, secondary and tertiary structures of DNA. 7
10. (a) Draw the structure of cytidine, thymidine and adenosine. 3
(b) Discuss the structure and function of m-RNA, t-RNA and r-RNA 7
(c) Discuss the any one following terms: 4
(i) Transcription
(ii) Translation