

2021
B.A./B.Sc.
Fifth Semester
 Discipline Specific Elective – 2
CHEMISTRY
Course Code: CHD 5.21
 (Green Chemistry)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

UNIT-I

1. (a) Explain the need for green chemistry 4
 (b) What are the obstacles in the pursuit of the goals of green chemistry? 5
 (c) Explain in detail about the various goals of green chemistry 5
2. (a) Write a short essay on twelve principles of green chemistry and its application. 8
 (b) Explain in detail about the application of atom economy in addition and substitution reactions with relevant examples. 6

UNIT-II

3. (a) Give short essays on each of the following 5×2=10
 (i) Population prevention hierarchy
 (ii) Minimization of hazardous toxicity in terms of green chemistry
 (b) What are super critical fluid? Explain its application in green chemistry. 4
4. (a) What are the role of water and ionic liquids as solvents for organic reactions? 4+4=8
 (b) How can we compare the greenness of solvents? 3
 (c) What are the preventions to be taken to minimise the toxic products in green chemistry? 3

UNIT-III

5. (a) Explain the application of microwaves and ultrasonic energy as an

- alternative source of energy. 3+3=6
- (b) What are the precautions to be taken during the selection of starting materials in green chemical reaction? 4
- (c) Write a short note on the application of various solvent less process. 4
6. (a) Explain in detail about the use of catalytic reagents in preference to stoichiometric reagents. 4
- (b) Give brief notes on the following terms with relevant examples.
- (i) Biocatalysis
 - (ii) Asymmetric catalysis
 - (iii) Photo catalysis
 - (iv) Homogeneous catalysis
 - (v) Heterogeneous catalysis 2×5=10

UNIT-IV

7. (a) Why are microwave assisted reactions more preferable than traditional method? 5
- (b) Explain the green method for the Hoffmann elimination reaction. 3
- (c) What are the safer routes to be taken to prevent the chemical accidents like Bhopal tragedy? 4
- (d) What is the principle of ISD? 2
8. (a) What is TBT? How is TBT useful in marine biological fouling? 5
- (b) Give an alternative to Strecker synthesis. 5
- (c) Write short notes on the following terms 2×2=4
- (i) Surfactant
 - (ii) Antifouling agent

UNIT-V

9. (a) Explain the following terms in detail 5×2=10
- (i) Co-crystal controlled solid state synthesis
 - (ii) Multifunctional Reagents
 - (iii) Biometric Reagents
 - (iv) Azodye
 - (v) Rightfit pigments
- (b) Write a short on green chemical aspects of the following 2×2=4
- (i) Dry cleaning

(ii) Microwave assisted reactions in water

10. (a) Explain the green nature of Diels-Alder and decarboxylation reaction. 3+3=6
- (b) Give a short essay on the application of green synthesis w.r.t. plastic made from corn. 4
- (c) Suggest some strategies to minimise hazardous waste generation. 4
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