

Code No. : 20026 E Sub. Code : SECH 6 A

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Sixth Semester

Chemistry

Major Elective — GREEN CHEMISTRY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Green chemistry ——— the consumption of non-renewable resources.
- (a) Reduces (b) Non-reduce
(c) Enhance (d) None of these

7. In the catechol synthesis ——— is used as biocatalyst.

- (a) E-coli (b) Enzymes
(c) Hormones (d) None of these

8. The greener synthesis of Ibuprofen by ——— can dramatically reduce the waste product generation.

- (a) BVC (b) BHC
(c) GHC (d) DTTP

9. To minimize the waste product formation is the ——— principle.

- (a) first (b) second
(c) third (d) tenth

10. The substance to be used in chemical reactions should not be ———

- (a) Harmless (b) Acidic
(c) Basic (d) Hazardous

2. ——— selectivity means control of absolute stereochemistry.

- (a) Diastereo (b) Chemo
(c) Regio (d) Enantio

3. For CO₂, the critical temperature is ——— °C.

- (a) 31 (b) 35
(c) 32 (d) 33

4. Ethyl ammonium nitrate is the first example of an ———

- (a) Ionic solid (b) Ionic liquid
(c) Gas (d) All the above

5. The supported ——— catalysts exhibit a remarkable high activity in the suzuki coupling and in the heck reaction.

- (a) Platinum (b) Nickel
(c) Palladium (d) Zinc

6. TiO₂ is used as a ——— catalyst in removing water pollutants.

- (a) acid (b) basic
(c) photo (d) bio

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Explain the need for green chemistry.

Or

- (b) Write short notes on the calculation of atom economy.

12. (a) Explain the green reagent dimethyl carbonate.

Or

- (b) Mention any five applications of super critical fluids.

13. (a) Explain the solid supported catalyst.

Or

- (b) Write short notes on modified bio catalyst.

14. (a) Explain the green synthesis of adipic acid.

Or

- (b) Write about the green synthesis of catechol.

15. (a) Mention the choice of starting materials in green chemistry.

Or

- (b) Explain the combinational green chemistry.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Mention and explain the various types of selectivity.

Or

- (b) Write short notes on :

- (i) Calculation of mass productivity
- (ii) Carbon efficiency.

17. (a) CO₂ as a super critical fluid - Discuss.

Or

- (b) Write short notes on :

- (i) Acidic ionic liquid
- (ii) Neutral ionic liquid.

18. (a) Explain : (i) Microbial oxidation (ii) Microbial reduction.

Or

- (b) Write notes on :

- (i) Neutral templating agents
- (ii) TAML catalyst.

19. (a) Write short notes on the green synthesis of the following (i) paracetamol (ii) citral.

Or

- (b) Give an account of the microwave assisted reactions in organic solvents.

20. (a) Write short notes on :

- (i) Versatile bleaching agents
- (ii) Analgesic drugs.

Or

- (b) Give an account of the importance of green chemistry in day to day life.