

(CBCS) DEGREE EXAMINATION, APRIL 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 :

Greener synthesis aims to develop the _____ reaction conditions.

- (a) cold (b) hot
(c) mild (d) strong

_____ selectivity means differentiation among various functional groups in a poly functional molecule.

- (a) chemo (b) regio
(c) enantio (d) diastereo

In the catechol synthesis _____ is used as biocatalyst.

- (a) Enzyme (b) E-coli
(c) Hormone (d) None of these

To minimize the waste product formation is the _____ principle.

- (a) second (b) sixth
(c) seventh (d) first

_____ catalytic reagents are superior to stoichiometric reagents in a chemical synthesis.

- (a) specific (b) second-class
(c) selective (d) effective

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

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

Or

- (b) Write short notes on the elimination reaction in atom economy.

- (a) Mention any five applications of supercritical fluids.

Or

- (b) Explain the green reagent dimethyl carbonate.

3. For CO₂, the critical pressure is _____ atm.

- (a) 74 (b) 73
(c) 72.8 (d) 73.8

4. _____ is the first example of an ionic liquid

- (a) Ammonia
(b) Hcl
(c) DMSO
(d) Ethyl ammonium nitrate

5. _____ catalysts are the most ideal, green catalysts and these are finding applications.

- (a) Bio (b) Acid
(c) Base (d) Photo

6. The supported _____ catalysts exhibit a remarkable high activity in the Suzuki coupling and in the Heck reactions.

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

7. In the Biocatalytic way adipic acid can be synthesized from _____.

- (a) D-glucose (b) L-glucose
(c) Mannose (d) None of these

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13. (a) Write short notes on solid supported catalyst.

Or

- (b) Explain the heterogeneous catalyst.

14. (a) Explain the green synthesis of Para acetamol

Or

- (b) Write one of the ultrasound assisted reactions

15. (a) Explain the versatile bleaching agents

Or

- (b) Write short notes on analgesic drugs.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write short notes on
(i) Calculation of mass intensity
(ii) Calculation of mass productivity

Or

- (b) Explain
(i) Need for green chemistry
(ii) Scope of green chemistry

17. (a) Write short notes on
(i) Acidic ionic liquid
(ii) Neutral ionic liquid

Or

- (b) Explain
(i) Hydrogenation
(ii) Hydroformylation

18. (a) Write short notes on
(i) TAML Catalyst
(ii) Microbial Oxidation

Or

- (b) Explain
(i) Neutral templating method
(ii) Microbial reduction

19. (a) Write short notes on
(i) Ibuprofen
(ii) Diels- Alder reaction

Or

- (b) Explain the oxidation of toluene and alcohols.

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20. (a) Discuss the twelve principles of green chemistry.

Or

- (b) Write about the green chemistry in sustainable developments.
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