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Reg. No. :

Code No. : 20329 E Sub. Code : CSCH 31

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2025.

Third Semester

Chemistry

Skill Based Subject — GREEN CHEMISTRY

(For those who joined in July 2021 and 2022 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Which of the following is the greenest solvent?
(a) Formaldehyde (b) Benzene
(c) Ethanol (d) Water
- Which of the following reaction is an atom economic reaction?
(a) Substitution (b) Elimination
(c) Grignard (d) Rearrangement

- _____ are most commonly known as new class of ionic liquids.
(a) Bis (Indolyl) (b) Methane
(c) DES'S (d) Ionic
- Which of the following gas was traditionally used to bleach paper?
(a) Chlorine (b) Hydrogen peroxide
(c) Fluorine (d) Carbon dioxide
- Enzyme catalyse biochemical reactions by
(a) Lowering the activation energy
(b) Increasing the activation energy
(c) Establishing stable bonds with substrate
(d) Increasing temperature
- Which of these enzymes are not proteinaceous?
(a) Kinases (b) Enonucleases
(c) Ligases (d) Ribozymes

7. The green synthesis methods should have
- Low efficiency
 - High harmful product
 - Low energy requirement
 - Low atom efficiency
8. Which of the following is a product formed in Claisen condensation?
- β -ester
 - β -Ketoester
 - β -Ketone
 - γ -diketone
9. The principle of operation of solar cell is _____ effect.
- Thermo electric
 - Energy
 - Piezo electric
 - Photovoltaic
10. Wind energy is harnessed by using _____.
- Electron generator
 - Vapour generator
 - Turbine generator
 - Steam generator

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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 efficiency parameter of environmental load factor.

Or

- (b) Write any five principles of green chemistry.

12. (a) Discuss the preparation and properties of super critical carbondioxides.

Or

- (b) Explain the applications in organic synthesis using ionic liquids.

13. (a) Discuss the polymer supported catalyst in acid-base catalyst.

Or

- (b) Explain the following

- Microbial oxidation
- Microbial reduction.

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[P.T.O.]

14. (a) Explain the Diel's Alder reaction.

Or

(b) Discuss the oxidation of toluene and alcohol with microwave assisted reactions.

15. (a) Write details about uses of wind energy.

Or

(b) Write a short notes on generation of Biogas.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the following parameters

(i) Reaction yield

(ii) Conversion factors.

Or

(b) Describe atom economy and reaction selectivity.

17. (a) Explain supercritical fluids. Give its advantages and applications.

Or

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(b) Give the synthesis of following :

(i) Ionic liquids

(ii) Acidic ionic liquid

(iii) Natural ionic liquid.

18. (a) Describe in details about enzyme catalyst.

Or

(b) Explain the following acid-base catalyst

(i) Oxidation catalyst

(ii) Polymer supported catalyst.

19. (a) Describe the microwave assisted reactions in Hoffmann elimination reaction.

Or

(b) Explain Microwave assisted reactions in the following.

(i) Fries rearrangement

(ii) Claisen rearrangement.

20. (a) (i) Give the sources of Biomass.

(ii) Describe the following

(1) Biogas generation

(2) Biodiesel.

Or

(b) Give the explanation about solar energy and its applications.

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