

(6 pages)

Reg. No. :

**Code No. : 30302 E Sub. Code : JMCH 6 A/
SECH 6 A**

B.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2020.

Sixth Semester
Chemistry – Main

Major Elective – III — GREEN CHEMISTRY
(For those who joined in July 2016 onwards)

Time : Three hours Maximum : 75 marks


PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Mass productivity =
- (a) $\frac{\text{Mass of product}}{\text{Total mass in process}}$
 - (b) $\frac{\text{Mass of product}}{\text{Mass of reactant}}$
 - (c) $\frac{\text{Mass of reactant}}{\text{Mass of product}}$
 - (d) $\frac{\text{Mass of reactant}}{\text{Total mass in process}}$

2. In addition reaction the atom economy is
- (a) 100% (b) 50%
(c) 36.4% (d) 0%
3. _____ is used for the removal of caffeine.
- (a) CO₂ (b) Water
(c) CH₂Cl₂ (d) DMSO
4. _____ property of ionic liquid make them safe to use in lab and industry.
- (a) high vapour pressure
(b) no vapour pressure
(c) low vapour pressure
(d) high melting point
5. Which acid catalyst is used in Petrochemical Industry?
- (a) Zeolite (b) HPA
(c) Pt (d) Ni
6. "Quick - Vinegar Process" is
- (a) C₂H₅OH to CH₃CHO
(b) C₂H₅OH to CH₃COOH
(c) CH₃OH to CH₃COOH
(d) CH₃OH to CH₃CHO

7. Adipic Acid is manufactured from
(a) CH_4 (b) C_6H_{12}
(c)  (d) C_2H_6
8. Benzyl bromide is prepared through _____ mechanism.
(a) radical (b) cationic
(c) anionic (d) carbene
9. Wood contains about _____ polysaccharides and _____ lignine
(a) 70% , 30% (b) 50% , 50%
(c) 20% , 10% (d) 98% , 2%
10. Best dry cleaning agent is
(a) liq. CO_2 (b) liq. N_2
(c) Benzene (d) ether

PART B — ($5 \times 5 = 25$ marks)

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

Each answer should not exceed 250 words.

11. (a) What is yield? Explain with an example.

Or

- (b) Write note on diastereoselectivity.

12. (a) Write note on “CO₂ as supercritical fluid”.

Or

(b) How to prepare imidazolium based ionic liquids?

13. (a) Write note on green oxidation catalyst.

Or

(b) What are the advantage of biocatalytic reaction?

14. (a) Write note on microwave assisted Esterification and Claizen rearrangement.

Or

(b) Write note on ultrasound assisted Esterification and Saponification reaction.

15. (a) Write note on Versatile bleaching agents.

Or

(b) Write note on combinatorial green chemistry.

PART C — ($5 \times 8 = 40$ marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the substitution and rearrangement reaction.

Or

- (b) Explain the chemoselectivity and regioselectivity with an example.

17. (a) Explain the applications of supercritical fluid extraction.

Or

- (b) Explain the ionic liquid in organic synthesis.

18. (a) Explain the green polymer supported catalysts.

Or

- (b) Explain the enzymes catalysed hydrolytic process.

19. (a) Explain the microwave assisted Diels–Alder reaction and de-carboxylation reaction.

Or

- (b) Explain the ultrasound assisted oxidation and reduction process with example.

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

Or

- (b) Explain the Biomimetic multifunctional reagents.
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