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M2CHE04-CC08

M.Sc. II SEMESTER EXAMINATION, 2018

CHEMISTRY

PAPER-IV

(Environmental and Green Chemistry)

Time Allowed : Three Hours

Maximum Marks : 80

Part-A (खण्ड-अ)

[Marks : 20]

Answer all questions (50 words each).

All questions carry equal marks.

सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न का उत्तर पचास शब्दों से अधिक न हो। सभी प्रश्नों के अंक समान हैं।

Part-B (खण्ड-ब)

[Marks : 40]

Answer five questions (250 words each), selecting one question each Unit. All questions carry equal marks.

प्रत्येक इकाई में से एक-एक प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए। प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

Part-C (खण्ड-स)

[Marks : 20]

Answer any two questions (300 words each)

All questions carry equal marks.

कोई दो प्रश्न कीजिए। प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो। सभी प्रश्नों के अंक समान हैं।

M2CHE04-CC08/620

P.T.O.

Part-A

1. Answer all questions—

- (i) What is atom economy ? Calculate the percentage atom economy of claisen rearrangement.
- (ii) What do you mean by green chemistry and who discovered the concept of green chemistry ?
- (iii) What are polymer supported reagents ? Explain giving one example.
- (iv) What do you mean by green solvent ?
- (v) How green synthesis is better than conventional synthesis ? Explain giving an example.

- (vi) What is the basic principle of microwave assisted synthesis ?
- (vii) What is green house effect ? How does it affect atmospheric quality.
- (viii) What is Anthrosphere ? What are its constituents?
- (ix) What is BOD ? Write its significance.
- (x) What are pesticides. Name any two pesticides.

2×10

Part-B

Unit-I

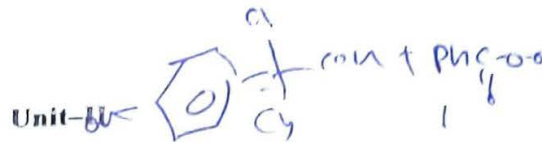
2. Write a short note on—

- (a) Phase transfer catalysis
- (b) Reducing toxicity.

4+4

3. Write principles of green chemistry.

8



4. Write a short note on-

- Polymer supported reagents
- Fluorous biphasic solvent.

4+4

5. What do you mean by solvent free reactions. Discuss with suitable examples.

8

Unit-III

6. Give the green synthesis of following compounds-

- Ibuprofen
- Polycarbonate

4+4

7. Write the classification and applications of microwave assisted synthesis.

8

Unit-IV

8. Give the toxicological effect of following-

- Mercury
- Cadmium

4+4

9. Write a short note on-

- Physical chemistry of sea water
- Lithosphere and its chemistry.

4+4

Unit-V

10. What is hardness ? How do you determine temporary and permanent hardness of water ?

8

11. Discuss the catalysts of aquatic chemical reactions; water pollution laws and standards.

Part-C

Unit-I

12. Define atom economic and uneconomic reactions giving suitable examples.

5+5

Unit-II

13. Write short note on the following-

- Methods of designing safer chemicals
- Supercritical-CO₂

5+5

Unit-III

- ✓4. Give the detail green synthesis of Adipic acid and citral.

5+5

Unit-IV



15. Write a short note on the following-

- (a) Eutrophication
- (b) Sewage treatment.

5+5

Unit-V

16. Give the determination of following in water sample-

- (a) Phosphate
- (b) Fluoride
- (c) Total dissolved solids.

3+3+4