5 SEM TDC DSE CHM (CBCS) 2 (H)

2024

(November)

CHEMISTRY

(Discipline Specific Elective)

(For Honours)

Paper : DSE–2

(Green Chemistry)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer : 1×6=6

(a) 12 green chemistry principles are postulated by

(i) Professor Paul T. Anastas

(ii) Professor John C. Warner

(iii) Professor Paul T. Anastas and Professor John C. Warner

(iv) Professor John R. Asthana

(b) In 1962 Rachel Carson wrote the book, *Silent Spring* illustrating about how to use

(i) CFC

(ii) DDT

(iii) BOD

(iv) BHC

(c) The Japanese Itai-itai disease has been attributed to

(i) lead poisoning

(ii) mercury poisoning

(iii) cadmium poisoning

(iv) arsenic poisoning

(d) An efficient green synthesis of a compostable and widely applicable plastic made from corn is

(i) polylactic acid

(ii) polyacetic acid

(iii) polyvinyl chloride

(iv) polyacrylic acid

(e) Which of the following reactions is an example of microwave assisted reaction in water?

(i) Hofmann elimination

(ii) Oxidation of toluene

(iii) Oxidation of alcohol

(iv) All of the above

(f) Which of the following is considered as green solvent?

(i) Water

(ii) Ionic liquids

(iii) Super critical CO_2

(iv) All of the above

2. Mention two goals of green chemistry. 2

3. Answer the following questions (any *five*) : 2×5=10

(a) All rearrangement reactions are 100% atom economical reactions. Explain with a suitable example. 2

7. Answer the following questions (any *two*) : 3½×2=7

(a) Explain the green approach of synthesis of Paracetamol. Why is it considered as green approach? 2½+1=3½

(b) Explain the green approach of synthesis of citral. Why is it considered as green process? 2½+1=3½

(c) Explain the green approach of synthesis of Catechol. Why is it considered as green process? 2½+1=3½

8. Answer the following questions (any *three*) : 3×3=9

(a) "Green chemistry is considered as sustainable chemistry." Explain with a suitable example.

(b) What will be the future trends in green chemistry in the field of catalysts?

(c) What will be the future trends in green chemistry in the field of proliferation of solventless reactions?

(d) Mention some guidelines to be followed to control the pollution due to industrial effluents.

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