

Roll No.

Total Pages : 3

337305

December, 2019
B.Sc. (H) Chemistry - III SEMESTER
Green Chemistry (SECC-02)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

- 1. It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
- 2. Answer any four questions from Part-B in detail.*
- 3. Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) How can you improve Atom Economy of a reaction? (1.5)
(b) What is Green Chemistry? (1.5)
(c) Why there is need for replacing ozone depleting solvents with CO₂? (1.5)
(d) "Green chemistry is sustainable chemistry". Explain the statement. (1.5)

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- (e) Write short note on Biocatalysis. (1.5)
- (f) Give some examples of green solvents. (1.5)
- (g) Mention some ozone depleting solvents. (1.5)
- (h) Discuss the applications of poly lactic acid. (1.5)
- (i) Give the structure of D-limonene. (1.5)
- (j) Give the structure and uses of phthalocyanine blue. (1.5)

PART - B

2. (a) Give the designing of environmentally safe marine antifoulant. (7)
- (b) Calculate the Atom Economy of the following reaction:
 Fermentation of Sugar to make alcohol

$$C_6H_{12}O_6(aq.) \rightarrow 2C_2H_5OH(aq.) + 2H_2O(aq.)$$
 (8)
3. (a) Write short notes on the following :
- (i) Surfactants for carbon dioxide.
 - (ii) Green energy and sustainability. (10)
- (b) List the problems associated with Lead and Cadmium based pigments. How can these problems be resolved? (5)

4. (a) Define Rightfit pigment. Why they are also known as azopigments. (7)
- (b) Explain the working mechanism of carbon dioxide surfactants in garment industry. (8)
5. (a) Write a note on Atom economy and give its significance. (7)
- (b) Give the extraction of D-limonene from orange peel using liquid CO_2 . (8)
6. (a) Discuss the solvent free synthesis of azomethine. (7)
- (b) Write briefly the twelve principles of Green chemistry and explain with the help of examples. (8)
7. What do you mean by the term Biodiesel? Give the preparation of biodiesel from vegetable oil and also discuss the characteristics of biodiesel. (15)