

This question paper contains 2 printed pages]

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S. No. of Question Paper : 2104

Unique Paper Code : 32173908

GC-3

Name of the Paper : SEC-8-Green Methods in Chemistry

Name of the Course : B.Sc. (H)/B.Sc. Prog.

Semester : III

Duration : 2 Hours

Maximum Marks : 37½

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *three* questions in all.

Question No. 1 is compulsory and each question carries 12½ marks.

1. Answer the following :

(a) "Green Chemistry is sustainable chemistry." Explain the statement.

(b) Complete the following equation :

$$\text{Risk} = \text{Hazard} \times \dots\dots\dots$$

(c) Which of the following is not one of the twelve principles of green chemistry :

(i) Less Hazardous chemical synthesis.

(ii) Maximization of atom economy

(iii) Using high temperature to speed up reactions

(iv) Use of Renewable feedstocks.

(d) Atom Economy is a measure of the of a reaction.

(e) Define rightfit pigment. Why are they also be called Azopigments ?

P.T.O.

(f) Explain the working mechanism of carbon dioxide surfactants in garment industry.

[2,1,1,1, 3½, 4]

2. (i) What is Green Chemistry ?

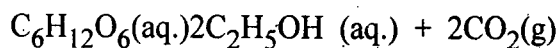
(ii) Write twelve principles of Green Chemistry with explanation. [2, 10½]

3 (a) Define ATOM ECONOMY.

(b) How can you improve the Atom Economy of a reaction ?

(c) Calculate the ATOM ECONOMY of the following reaction :

The Fermentation of the Sugar to make ethanol



(d) List the problems associated with Lead and Cadmium based pigments. How can these problems be resolved ? [2, 2, 5, 3½]

4. Write short notes on the following :

(a) Surfactants for carbon dioxide

(b) Ionic Liquids

(c) Green Energy and Sustainability.

[4, 4, 4½]