

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM. - SEMESTER- VII • EXAMINATION – SUMMER-2016

Subject Code: 2270012

Date: 13/05/2016

Subject Name: Green Chemistry

Time: 2:30 PM to 5:30 PM

Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1**
- (a) Give introduction to Green chemistry. (6)
 - (b) Write synthesis of the following compounds (5)
 - I. Adipic acid
 - II. Ibuprofen
 - (c) Enumerate microwave assisted reaction in water. Explain reductions reaction in details. (5)
- Q.2**
- (a) Describe twelve principles of green chemistry with their examples. (6)
 - (b) Give the reaction of, (5)
 - I. Cannizzaro reaction
 - II. Reformatsky reaction
 - (c) Discuss in brief designing of green synthesis. (5)
- Q.3**
- (a) Explain uses of microwaves and ultrasonic energy. (6)
 - (b) Add note on: Combinatorial green chemistry. (5)
 - (c) Explain the limitations of green chemistry. (5)
- Q.4**
- (a) Give polymeric sulfonic acids reaction with examples. (6)
 - (b) Explain oxidation and alkylation reactions of ultrasound assisted reactions. (5)
 - (c) Give the synthesis route on, (5)
 - I. 4- aminodiphenylamine
 - II. Acetaldehyde
- Q.5**
- (a) Write a reaction of microwave assisted organic solvents, (6)
 - I. Claisen rearrangement
 - II. Decarboxylation
 - III. Diels alder reaction
 - (b) Explain techniques of biocatalysts. (5)
 - (c) Give the application of green chemistry in industrial synthesis. (5)
- Q.6**
- (a) Short note on proliferation solvent less reactions. (6)
 - (b) Discuss oxidation reaction of toluene and alcohols reaction of microwave assisted in water. (5)
 - (c) Give advantages and limitations of biocatalysts. (5)
- Q.7**
- (a) Enumerate and explain microwave solvent free reactions (6)
 - (b) Write a note on polymer supported catalysts. (5)
 - (c) Write a note on green solvents. (5)
