

Total No. of Questions : 8]

SEAT No. :

P1770

[4659] - 252

[Total No. of Pages : 2

**B.E. (Petrochemical Engineering)
d - GREEN CHEMISTRY
(2008 Course) (Elective - I) (Semester - I)**

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answer three questions from section I and three questions from section II.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

SECTION - I

Q1) a) Discuss application of super critical carbon dioxide in process of extraction.

b) Write a note on environmental management systems and ecolevels.

[16]

Q2) a) Explain how biomass can be converted in to useful chemical products.

b) Write a note on photocatalysis.

[16]

Q3) a) State the twelve principles of green chemistry.

[12]

b) Mention green advantages in employing phase transfer catalysis.

[4]

Q4) a) Discuss in brief the concept of atom economy.

b) Mention challenges in photochemical synthesis as a green process.

c) Write a note on ionic liquids and their applications.

[18]

P.T.O.

SECTION - II

- Q5)** a) Discuss the process for preparation of adipic acid by green approach.
b) Write a note on organic synthesis by electrochemical method. **[16]**
- Q6)** a) Describe the conventional process and green process for manufacturing lactic acid.
b) Write a note on process intensification with respect to a green approach. **[16]**
- Q7)** a) Discuss utilization of green chemistry approach for prevention of pollution.
b) Discuss conventional and green methods for preparation of an aromatic amines. **[16]**
- Q8)** Write notes. **[18]**
- a) Solar heating and photovoltaics.
 - b) Biocatalysis.
 - c) Causes of global warming.
 - d) Conversion of biological and agricultural feedstock to petrochemicals.

