K-5/2110 7410/N

Fundamental and Atmospheric Photochemistry-333
(Semester-III)

[Time: Two Hours] **[Maximum Marks: 55]**

Note: Attempt any four questions. All questions carry equal marks.

1.	a) Describe photosensitized reactions of simple alkanes and alkenes. b) Describe spin conservation Rule. Give its application for energy transfer.	7 Marks 6.75 Marks
2.	a) How luminescence is applied to optical bleaching of textiles and papers? b) A certain substance in a cell of length 1 cm absorbs 10% of the incident light. What fraction of the incident light will be absorbed in a cell five times as long?	5.75 Marks 8 Marks
3	a) Explain mechanism of energy transfer by considering donor (D) and acceptor (A) system. b) Describe photosensitized incorporation of molecular oxygen into organic compounds. c) Explain different kinds of spectra with examples.	4.75 Marks 4 Marks 5 Marks
4.	a) How photoreactions and thermally initiated reactions are distinguished? b) Describe in detail the photophysical process of HI.	6.75 Marks 7 Marks
5.	a) Write the kinetic analysis and quantum yield of triplet state. b) Derive mathematical expression for Lambert Beer's Law.	6.75 Marks 7 Marks
6.	(a) Discuss the Spectrum of Oxygen along with reactions. (b) What is Ozone Hole? Discuss the mechanism of Ozone Hole.	7 Marks 6.75 Marks
7.	(a) What are the differences between Photochemical Smog and London Smog? (b) What is a Pollutant? Discuss different ways to explain concentration of Pollutant?	7 Marks 6.75 Marks
8.	(a) What is particulate Matter. Briefly explain. (b) Explain PAN in the atmosphere?	7 Marks 6.75 Marks
9.	(a) Discuss different Zones in the atmosphere with respect to Diffusion. (b) What is NO_x? Explain its monitoring in the atmosphere.	7 Marks 6.75 Marks