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MAV-3490 Seat No._____

M. Sc. (Sem. III) Examination

October / November – 2018

Organic Photochemistry : Paper-604-A

(Photo Organic Chemistry)

Time : 2 Hours] [Total Marks : 50

1 (A) Answer any **two** : 10

(i) Write different types of photochemical reactions. Discuss photo reduction & photo addition reaction with suitable examples.

(ii) What is actinometry ? Discuss about Ferrioxalate and Uranyl oxalate actinometer.

(iii) Write a short note on dual nature of matter.

(B) Answer any **two** : 6

(i) Determine rate constant of photochemical reaction.

(ii) Discuss the cis-trans isomerisation by the use of photosensitizer.

(iii) Write cyclization reaction in 1, 6 diene and 1, 7 diene.

(C) Answer any **one** : 4

(i) Write the rearrangement of 1, 4 diene.

(ii) Explain the gas phase photolysis with any four suitable examples.

2 (A) Answer any **two** : 10

(i) Write a short note on intermolecular photocyclo dimerisation of carbonyl compounds.

(ii) Explain intramolecular reactions in acyclic carbonyl compounds.

(iii) Describe Norrish type-II process with suitable examples.

(B) Answer any **two** : 6

(i) Discuss the retro-Diels-Alder reaction with suitable examples.

(ii) Write a short note on photochemical aromatic substitution reaction.

(iii) Explain the reaction of an aromatic & aliphatic ketone with diene.

(C) Answer any **one** : 4

(i) Write the reaction of Smog formation & effect of Smog on life.

(ii) Discuss photochemistry of Vision.

3 Answer the following in short : 10

(i) What is $n \rightarrow \pi^*$ excitation ?

(ii) Write an example of photochemical adiabatic reaction.

(iii) Which actinometer works effectively between the wavelength from 316 nm to 735 nm ?

(iv) Which type of transition occurs in the gas phase photolysis ?

(v) Write an example of photo fragmentation in liquid phase.

(vi) Write a name of photosensitive compound of human eyes.

(vii) Write the microscopic difference between intramolecular & intermolecular reactions.

(viii) Define : Barton reaction.

(ix) Write a chemical reaction of retinal with R-NH_2 (Lysine of Scotopsin)

(x) Define : Dimerisation.