2021

Time :As in Programme

Full Marks : 50

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

1. (a) Discuss the two types of transfer of excitation energy with example. 5

(b) Derive an equation to determine the rate constants of photochemical reaction. 6

(c) Write short notes on the following: 6

i. Phosphorescence

ii. Ferrioxalate actinometer

OR

(a) Discuss the laws of photochemistry? 6

(b) Write short notes on the following: 9

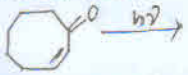
i) Chemical Laser

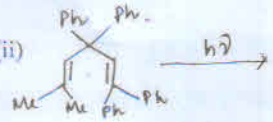
ii) Gas phase photolysis

iii) Chemical actinometry

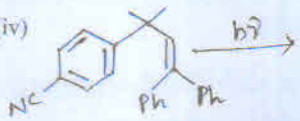
(c) Why only UV-visible region of light is able to produce chemical change, while others are not? 2

2. (a) Give the major product of the following photochemical reactions: 8

(i) 

(ii) 

(iii) 

(iv) 

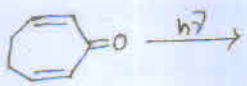
(b) Write short notes on the following: 8

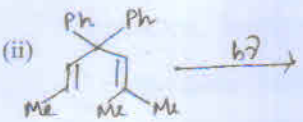
i) Di-ð-methane rearrangement

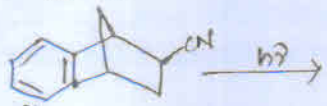
ii) Photo reduction

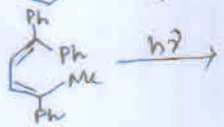
OR

(a) Give the major product of the following photochemical reactions: 8

(i) 

(ii) 

(iii) 

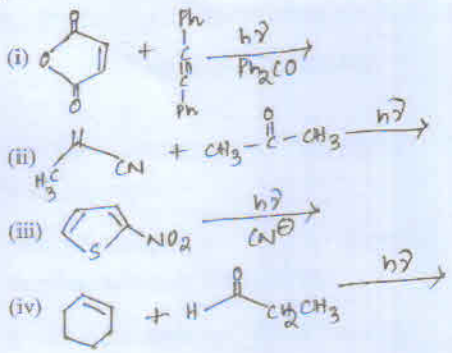
(iv) 

(b) Write short notes on the following: 8

i) Norrish type-I reaction

ii) Photo-Fries reaction of anilides

3. (a) Write down the major product of the following photochemical reactions: 8



(b) Predict the product(s) formed and reaction mechanism on vapour phase photolysis of cyclohexanone? 5

(c) Give the intermediates and final product of the following photochemical reaction. 4