

M-6333

M.Sc. (IIIrd Semester) Examination, 2020

CHEMISTRY

(Photochemistry)

Time Allowed : Three Hours

Maximum Marks : 70

Note : Attempt all the five questions. One question from each unit is compulsory. Marks are indicated against the questions.

Unit-I

Q. 1. State and explain laws of photochemistry. **14**

OR

What are absorption and emission spectra ?

Discuss environmental effects on absorption and

emission properties. **14**

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P.T.O.

(2)

Unit-II

Q. 2. (a) Discuss the theory of phosphorescence and fluorescence. **8**

(b) Write the application of fluorescence. **6**

OR

Write short notes on :

(a) Stern Volmer Equation **6**

(b) Excimer Formation **4**

(c) Exciplex Formation **4**

Unit-III

Q. 3. Discuss photochemical chemical calculation of rates of radiative process in detail. **14**

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(3)

OR

Write short notes on : **7+7=14**

- (a) Charge transfer spectra
- (b) Excited states of metal complexes

Unit-IV

Q. 4. (a) Describe the energy content of excited states. **7**

(b) Discuss the theory of photoreduction. **7**

OR

Explain the following : **7+7=14**

- (a) Photooxidation
- (b) Zero vibrational levels of ground and excited states

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P.T.O.

(4)

Unit-V

Q. 5. (a) What are suitable conditions of the excited

states to be useful as Redox reactants. **7**

(b) Write the application of Redox processes of electronically excited states for catalytic purpose. **7**

OR

Write short notes on : **7+7=14**

- (a) Excited Electron Transfer
- (b) Mechanism of Vision



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