**Seat No:**_____ **Enrollment No:**_____

# PARUL UNIVERSIT

## FACULTY OF APPLIED SCIENCE

## M.Sc. Winter 2017-18 Examination

**Semester: 3** **Date: 19/12/17**

**Subject Code: 11205201** **Time: 10.30am to 01.00pm**

**Subject Name:**Pericyclic Reactions, Photochemistry and Free Radicals **Total Marks: 60**

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**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1. A) Answer the following questions**

(a) Discuss energy diagram for 1,3- butadiene **(04)**

(b) Construct correlation diagram for cycloaddition reaction **(04)**

**Q.1. B) Answer the following question (Any two)**

(a) 1. Give the name of pericyclic reaction **(02)**

2. Write any two example of ring closing **(02)**

(b) Explain 1,3- dipolar species with two examples **(04)**

(c) Explain cope and claisen cope rearrangement **(04)**

**Q.2. A) Answer the following questions.**

(a) 1. Calculate whether the reaction 1,3 butadiene, $\Psi_2$, conrotatory is thermally allowed or photo chemically allowed? **(02)**

2.Explain claisen and claisen cope rearrangement **(02)**

(b) Explain [1,3] and [1,5]- sigmatropic rearrangement **(04)**

**Q.2. B) Answer the following questions (Any two)**

1. (a) Give one example for degenerated cope rearrangement

(b) Which condition is required for 4n, disrotatory motion?

(c) Is Penta dienyl carbanion is 4n or 4n + 2 systems? **(03)**

2.Give difference between electrocyclic and Cyclo Addition Reaction **(03)**

3.Explain group transfer reaction **(03)**

**Q.3. A) Answer the following questions (Each of 04 marks)** **(08)**

(a) Explain laws of photo chemistry

(b) Discuss Norrish- I reaction

**Q.3. B) Answer the following questions (Any two)**

(a) 1. Give any two examples of cis- trans isomerization **(02)**

2.Explain di-pi methane rearrangement with mechanism **(02)**

(b) Discuss photo-fries rearrangement with mechanism **(04)**

(c) Write down short note on Photo reduction **(04)**

**Q.4. A) Answer the following questions.**

(a) 1.Give the example of free radicals generation (any two) **(04)**

2. Write down mechanism for Gomberg reaction

(b) Explain Barton Reaction**(04)**

**Q.4. B) Answer the following questions (Any two)**

(a) 1. In Norrish II ketone is converted into _____ **(03)**

2. In fluorescence transition takes place from which state to which state

3. Give name of three reactions in which value of $\Delta G$ is positive

(b) Draw Jablonskii diagram **(03)**

(c) Write down sandmeyer reaction **(03)**