

Q.P. Code : 60775

Third Semester M.Sc. Degree Examination, January/February 2020

(CBCS Scheme)

Chemistry

Paper C 301 OC — ORGANIC REACTION MECHANISMS

Time : 3 Hours]

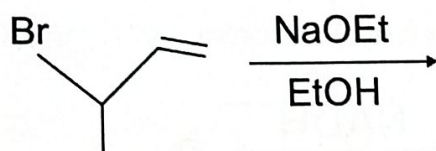
[Max. Marks : 70

Instructions to Candidates : Answer question No. 1 and any five of the remaining.

1. Answer any **TEN** questions :

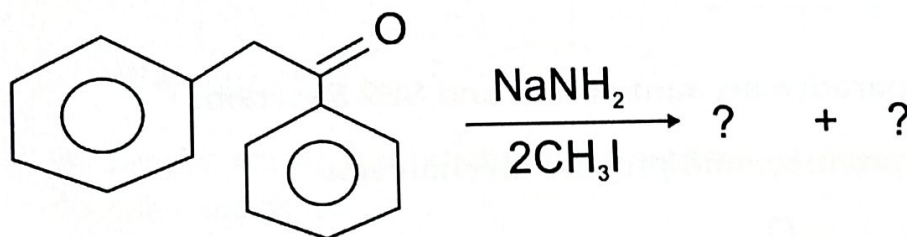
(10 × 2 = 20)

(a) Predict the product and propose a mechanism.



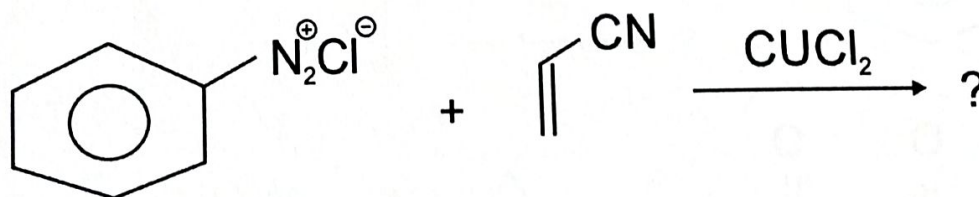
(b) What is SEi reaction? Explain with a mechanism.

(c) Give the products and a suitable mechanism :



(d) What is Gomberg-Bachmann reaction? Explain with an example.

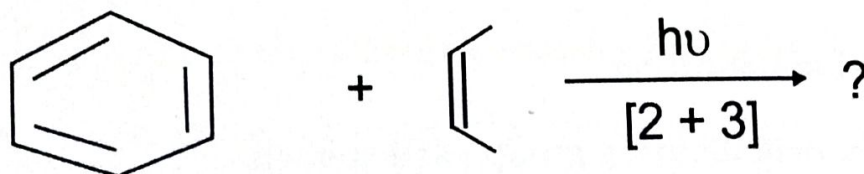
(e) Predict the product and propose a mechanism :



(f) With a suitable example, give the method of generation of carbon free-radicals through azo compounds.

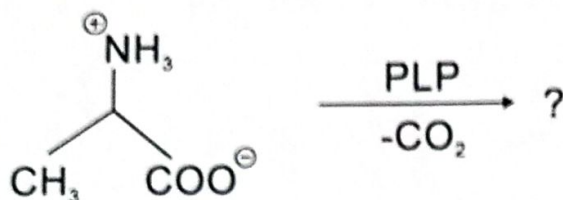
(g) What is Norrish type-II reaction? Explain with an example.

(h) Give the product and a mechanism.

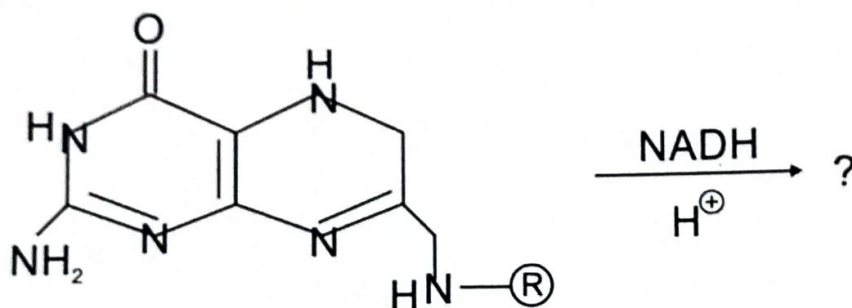


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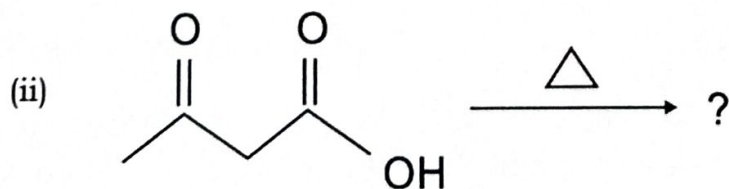
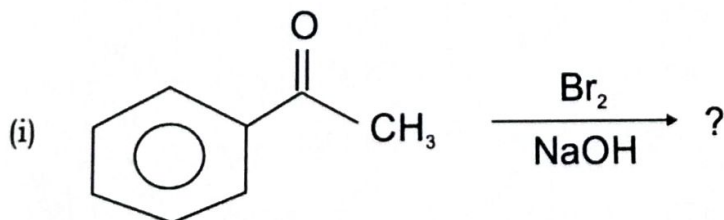
- (i) With a suitable example, give the mechanism of a $[w2_a + x2_s]$ -cycloaddition reaction.
- (j) What is aza-cope rearrangement? Explain with a mechanism.
- (k) Give the product and mechanism for the following :



- (l) Predict the product and propose a mechanism of the following reaction :



2. (a) Give a comparative account of SE1 and SE2 Reactions.
- (b) Predict the products and propose mechanisms :



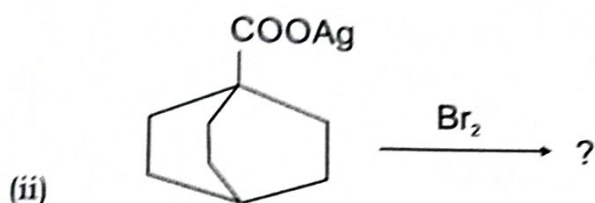
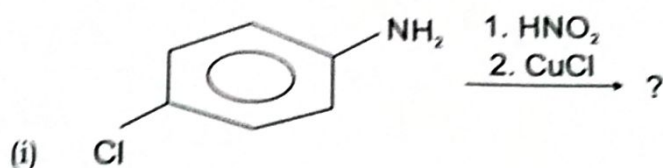
(4 + 6 = 10)

3. (a) Describe the mechanisms of the following reactions with suitable examples :

- (i) Free-radical substitution
- (ii) Free-radical neighbouring group participation

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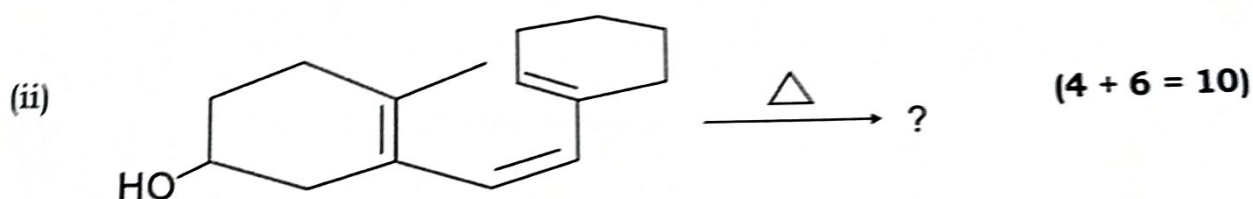
(b) Predict the products and propose mechanisms :



(4 + 6 = 10)

4. (a) Draw Jablonski diagram and describe the photochemical processes.

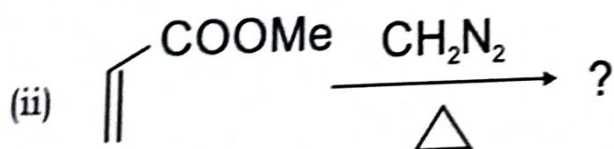
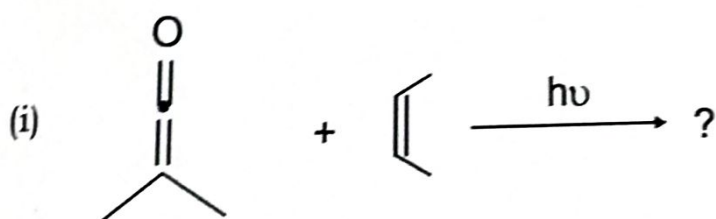
(b) Predict the products and propose mechanisms.



(4 + 6 = 10)

5. (a) Write briefly about the mechanistic aspects of enantio and endo-selective Diels-Alder reaction.

(b) Predict the products and propose mechanisms.



(4 + 3 + 3 = 10)

6. Discuss the role of the following :

(a) Vitamin-KH₂ coenzyme in γ -carboxylation of glutamate side chains.

(b) Lipoic acid in the acyl group transfer reaction.

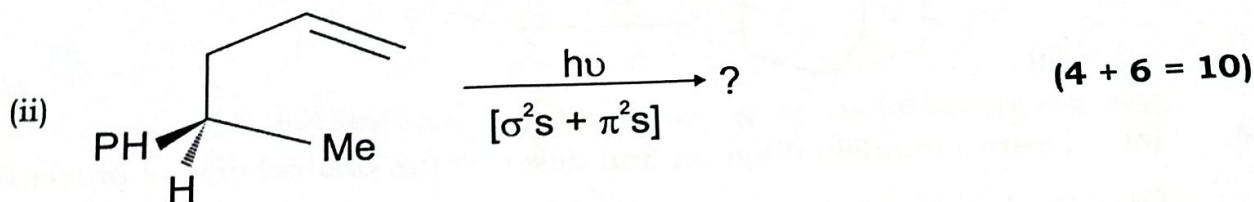
(c) Pyridoxal phosphate in the dealdolization reaction of amino acids.

(4 + 3 + 3 = 10)

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7. (a) Sketch the mechanism of biosynthesis of thymidylate from 2'-deoxyuridylate by N^5, N^{10} -methylene tetrahydrofolate.

(b) Predict the products and propose mechanisms.



8. (a) What is Walk rearrangement? Give the mechanism with a suitable example by FMO approach.

(b) Predict the products and propose mechanisms :

