AU–318

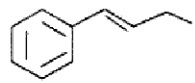
M.Sc. (Part-I) Semester-II (CBCS Scheme) Examination
(New Course)
CHEMISTRY
Paper—VI
(Organic Chemistry—II)

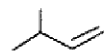
Time : Three Hours] [Maximum Marks : 80

Note :— ALL questions are compulsory and carry equal marks.

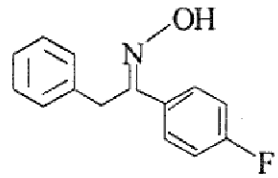
1. (a) Comment on :
   (i) Curtis Rearrangement
   (ii) Aldol Condensation. 6

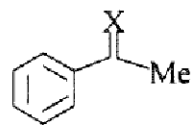
   (b) Predict the orientation in HCl addition to following alkenes :

   (i) 

   (ii)  5

   (c) Predict the product :

   (i) 

   (ii) 

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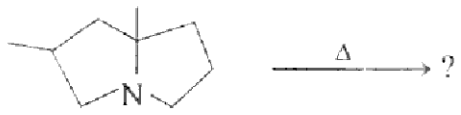
   X = NOTs/$NMe_3^+I^-$

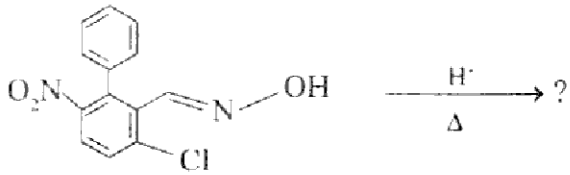
OR

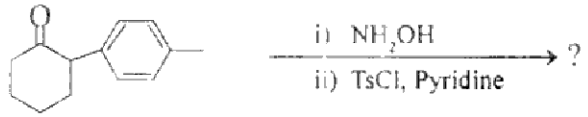
   (p) Comment on :
   (i) Hunsdiecker Reaction
   (ii) Reed Reaction. 6

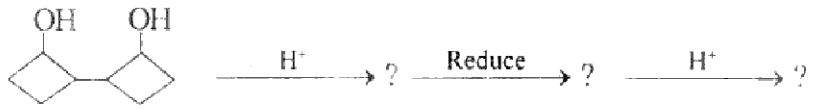
(q) Electrophilic addition to alkene can produce stereoisomerism. Explain. 5

(r) Predict the product of following reaction :

(i) 

(ii) 

(iii) 

(iv) 

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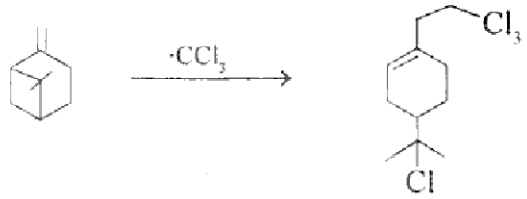
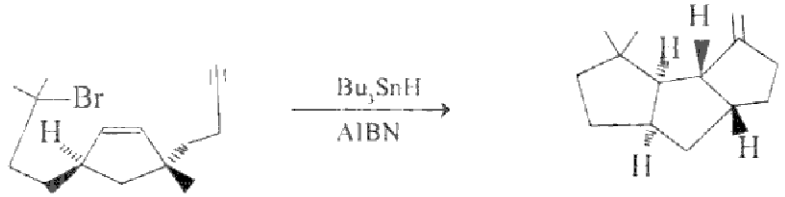
2. (a) Explain Barton Deoxygenation and McMurry coupling. 6

(b) Rationalize following free radical rearrangement reaction :

(i) 

(ii) 

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(c) Explain following :

(i) Steven's Rearrangement

(ii) Lossen Reaction. 5

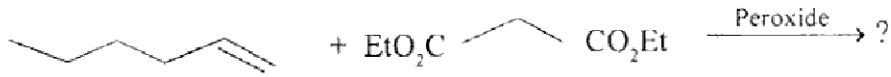
OR

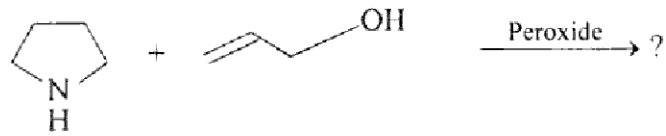
(p) Explain in brief Sand-Mayer Reaction. 5

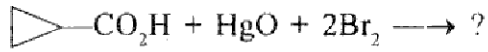
(q) Explain the use of Fenton's Reagent for aromatic Hydroxylation. Give the mechanism. 5

(r) Predict the product of following photochemical reaction :

(i) 

(ii) 

(iii) 

(iv) 

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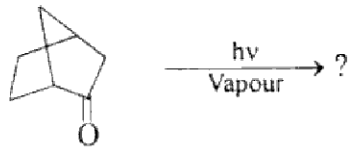
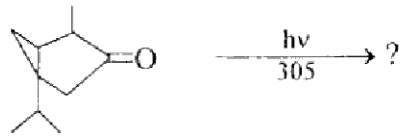
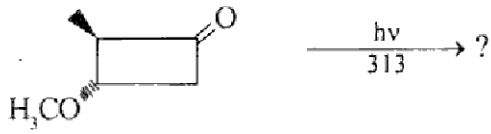
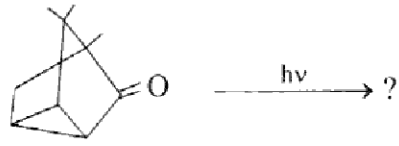
3. (a) Give the details of Paterno-Buchi Reaction. 5

(b) Predict the product and give the mechanism of following photochemical reaction :

(i) 

(ii) 

(iii) 

(iv) 

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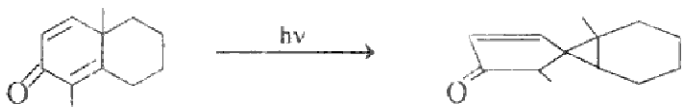
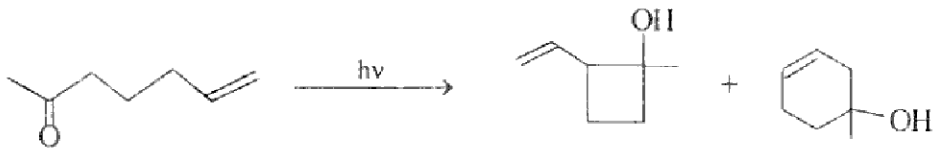
(c) Rationalize the following photochemical transformation :

(i) 

(ii) 

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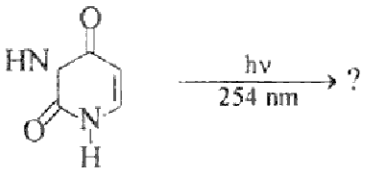
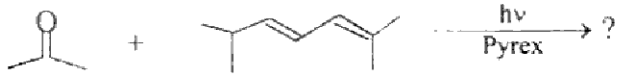
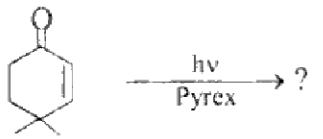
OR

(p) Comment on Photo-Fries rearrangement. 5

(q) Predict the product :

(i) 

(ii) 

(iii) 

(iv) 

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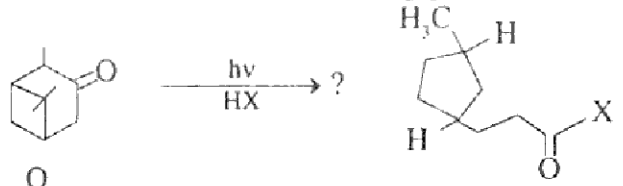
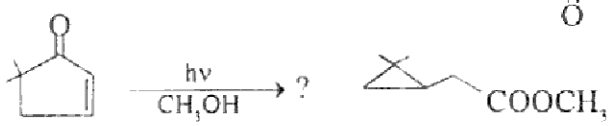
(r) Suggest mechanism for the following photoreactions :

(i) 

(ii) 

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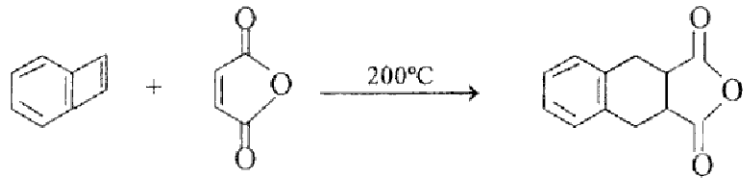
4. (a) What is electrocyclic reaction ? Explain with suitable examples. 6

(b) Benzocyclobutene reacts with maleic anhydride when heated at 200°C to give the single product. Give the mechanism.



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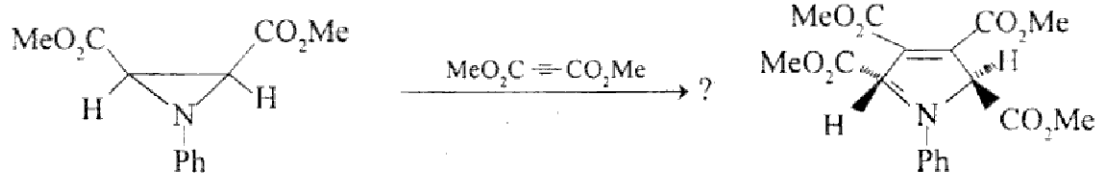
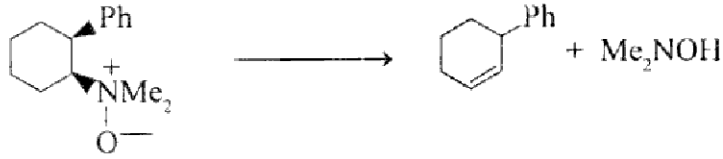
(c) Rationalize the following thermal reaction :

(i) 

(ii) 

(iii) 

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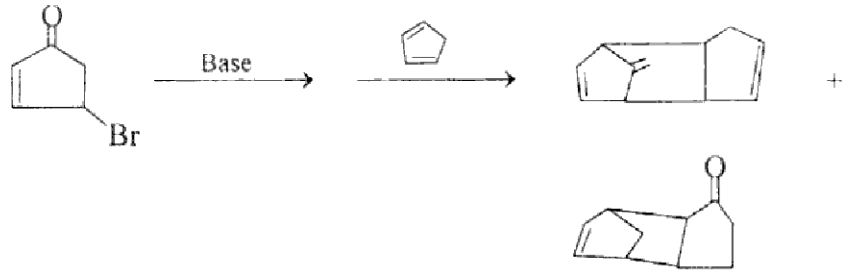
OR

(p) Give a brief account of sigmatropic rearrangement. 5

(q) The reaction of (A) with base in the presence of 1,3 cyclopentadience produced (B) and (C) Account for their formation.



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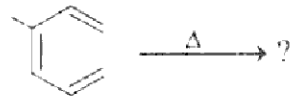
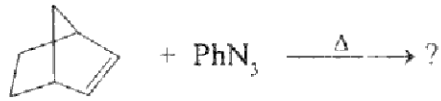
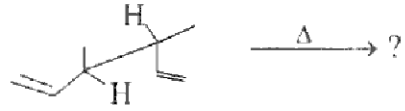
(r) Draw the structure of the chief product of each of following thermal reactions :

(i)  6

(ii) 

(iii) 

5. (a) Discuss basic principle of green chemistry. 6

(b) What is ionic liquids ? Explain. 5

(c) Explain green synthesis of paracetamole and urathene. 5

OR

(p) Explain Free Radical bromination in light of green chemistry. 5

(q) Explain the concept of maximum incorporation of starting material with suitable examples. 5

(r) Explain concept of green chemistry in :

(i) Addition Reaction

(ii) Substitution Reaction. 6