Gurudas College **SET-A**

Internal Assessment-2019

Semester-II

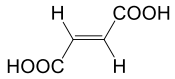
Subject: CEMA **Paper: CC-2-3-Th**

Name: **College Roll No:**

FM: 10 Time: 30 Minutes

Answer any ten questions (put √ mark on the right answer)

1. The following structure of fumaric acid has

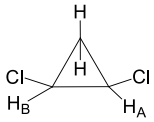


(a) *Re-Re* face (b) *Si-Si* face (c) *Re-Si* face (d) *Si-Re* face

2. Torsional curves of ethane and propane (rotation about C-1 and C-2 bond) are almost same in nature. The above statement is

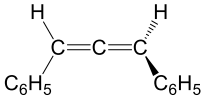
(a) true (b) false (c) none of them (d) both of them

3. H_A and H_B in the following compound is



(a) homotopic (b) enantiotopic (c) diastereotopic (d) none of them

4. The following compound is optically active due to the presence of



(a) plane of symmetry (b) center of symmetry

(c) simple axis of symmetry (d) alternating axis of symmetry

5. In case of chiral biphenyl, chirality comes to exist due to the restricted rotation about the

(a) sp^2-sp^2 σ bond joining two phenyl rings

(b) (b) sp^2-sp^3 σ bond joining two phenyl rings

(c) sp^2-sp σ bond joining two phenyl rings (d) None of them

6. Hydrolysis of $(CH_3)_3CCl$ and $(CD_3)_3CCl$ individually provide $(CH_3)_3COH$ and $(CD_3)_3OH$ respectively. Where $K_H/K_D = 1.34$. This reaction is an example of

(a) primary kinetic isotope effect (b) secondary kinetic isotope effect

(c) inverse isotope effect (d) solvent isotope effect

7. Large activation energy (E_a) and negative enthalpy change ($-\Delta H°$) of a reaction indicate that the reaction is

(a) slow and endothermic reaction (b) slow and exothermic reaction

(c) fast and endothermic reaction (d) fast and exothermic reaction

8. Which statement of the following is correct?

(a) transition states in endothermic reactions resemble the reactants.

(b) transition states in exothermic reactions resemble the products.

(c) transition states in endothermic reactions resemble the products.

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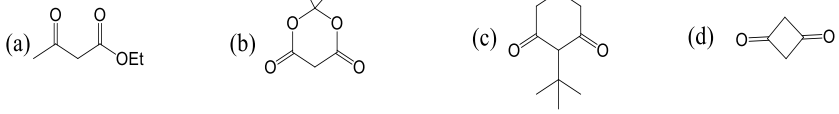
9. Identify $\Delta H°$ for the following reaction.

CH_3CH_2-Br + $H_2O \rightarrow CH_3CH_2$-OH + HBr

[Bond dissociation energy for CH_3CH_2-Br = 285 KJ/mol, H-OH = 498 KJ/mol, CH_3CH_2-OH = 393 KJ/mol and H-Br = 368 KJ/mol]

(a) 783 KJ/mol (b) 761 KJ/mol (c) −761 KJ/mol (d) 22 KJ/mol

10. Which of the following compounds is 100% enol?



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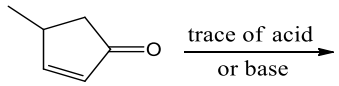
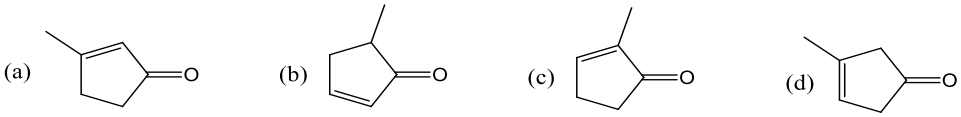
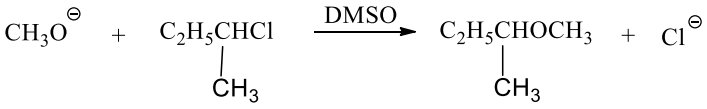




12. Which of the following compounds is the strongest base in aqueous medium?

(a) Me_3N (b) Me_2NH (c) $MeNH_2$ (d) NH_3

13. What is the mechanism and configuration of the product of the following nucleophilic substitution reaction?



(a) S_N1 mechanism and racemization of the product

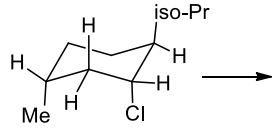
(b) S_N2 mechanism and inversion of the product

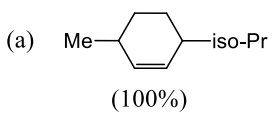
(c) S_N^i mechanism and retention of the product

(d) both S_N1 and $S_N2$mechanism and racemization of the product

14. Which of the following compounds undergoes solvolysis faster?

15. Identify the product for the following elimination reaction.





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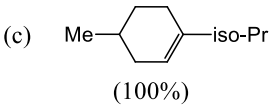

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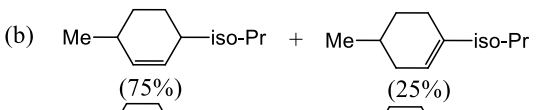

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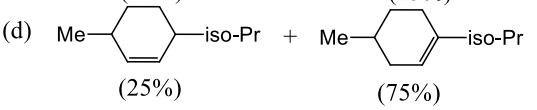

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Gurudas College **SET-B**

Internal Assessment-2019

Semester-II

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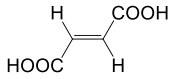

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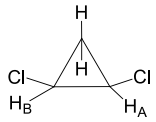

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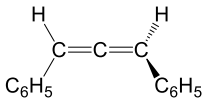

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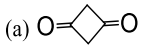
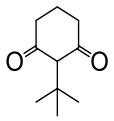
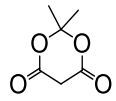
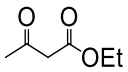
(a)  (b)  (c)  (d) 

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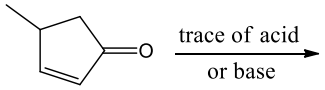
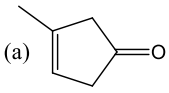
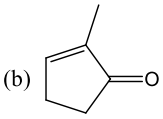
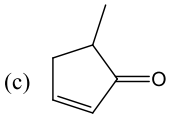
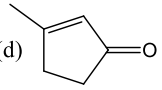
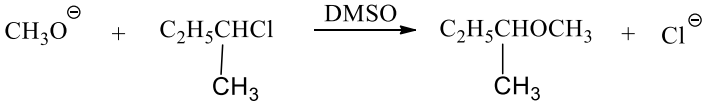


(a)  (b)  (c)  (d) 

12. Which of the following compounds is the strongest base in aqueous medium?

(a) NH_3 (b) $MeNH_2$ (c) Me_2NH (d) Me_3N

13. What is the mechanism and configuration of the product of the following nucleophilic substitution reaction?



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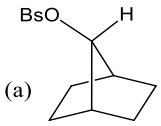
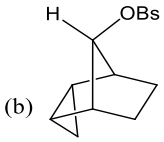
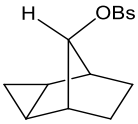
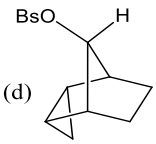
(a)  (b)  (c)  (d) 

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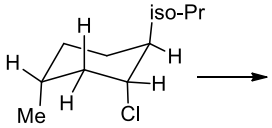
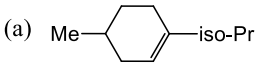


(a) 

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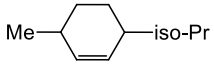
(c) 

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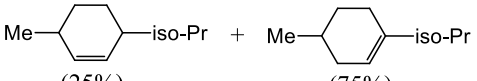
(b) 

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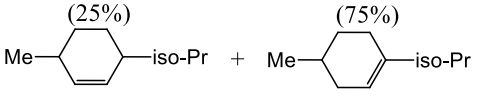
(d) 

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Gurudas College **SET-C**

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Semester-II

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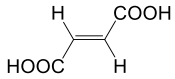

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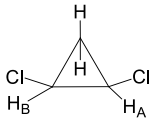

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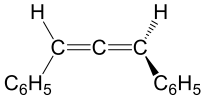

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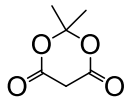
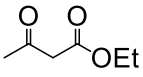
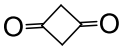
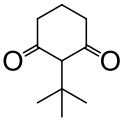
(a)  (b)  (c)  (d) 

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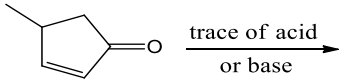
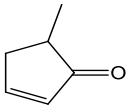
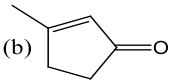
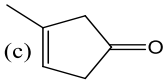
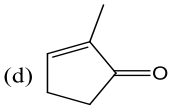
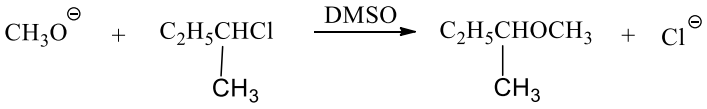


(a)  (b)  (c)  (d) 

12. Which of the following compounds is the strongest base in aqueous medium?

(a) Me_2NH (b) Me_3N (c) NH_3 (d) $MeNH_2$

13. What is the mechanism and configuration of the product of the following nucleophilic substitution reaction?



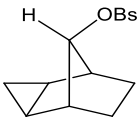
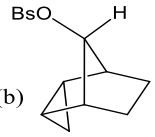
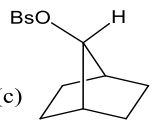
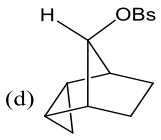
(a) S_N2 mechanism and inversion of the product

(b) S_N1 mechanism and racemization of the product

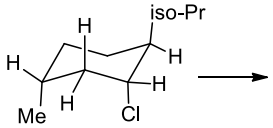
(c) both S_N1 and $S_N2$mechanism and racemization of the product

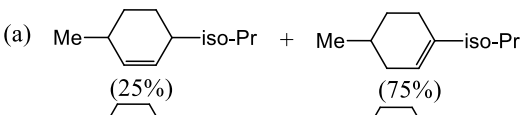
(d) S_Ni mechanism and retention of the product

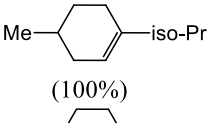
14. Which of the following compounds undergoes solvolysis faster?

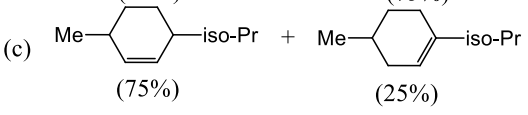
(a)  (b)  (c)  (d) 

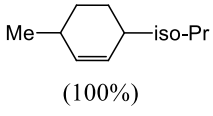
15. Identify the product for the following elimination reaction.



(a) 

(b) 

(c) 

(d) 

Gurudas College **SET-D**

Internal Assessment-2019

Semester-II

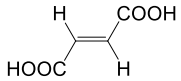
Subject: CEMA **Paper: CC-2-3-Th**

Name: **College Roll No:**

FM: 10 Time: 30 Minutes

Answer any ten questions (put √ mark on the right answer)

1. The following structure of fumaric acid has

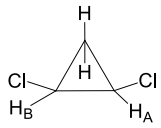


(a) *Re-Si* face (b) *Si-Re* face (c) *Re-Re* face (d) *Si-Si* face

2. Torsional curves of ethane and propane (rotation about C-1 and C-2 bond) are almost same in nature. The above statement is

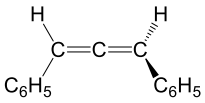
(a) true (b) false (c) both of them (d) none of them

3. H_A and H_B in the following compound is



(a) diastereotopic (b) enantiotopic (c) homotopic (d) none of them

4. The following compound is optically active due to the presence of



(a) simple axis of symmetry (b) alternating axis of symmetry

(c) plane of symmetry (d) center of symmetry

5. In case of chiral biphenyl, chirality comes to exist due to the restricted rotation about the

(a) sp^2-sp σ bond joining two phenyl rings

(b) sp^2-sp^3 σ bond joining two phenyl rings

(c) sp^2-sp^2 σ bond joining two phenyl rings (d) None of them

6. Hydrolysis of $(CH_3)_3CCl$ and $(CD_3)_3CCl$ individually provide $(CH_3)_3COH$ and $(CD_3)_3OH$ respectively. Where $K_H/K_D = 1.34$. This reaction is an example of

(a) inverse isotope effect (b) solvent isotope effect

(c) primary kinetic isotope effect (d) secondary kinetic isotope effect

7. Large activation energy (E_a) and negative enthalpy change ($-\Delta H°$) of a reaction indicate that the reaction is

(a) fast and endothermic reaction (b) fast and exothermic reaction

(c) slow and endothermic reaction (d) slow and exothermic reaction

8. Which statement of the following is correct?

(a) transition states in endothermic reactions resemble the reactants.

(b) transition states in exothermic reactions resemble the products.

(c) transition states in endothermic reactions resemble the products.

(d) transition states in exothermic reactions resemble both the reactants and products.

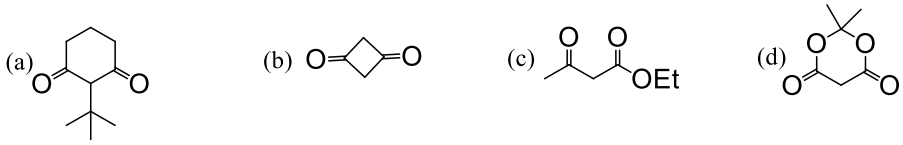
9. Identify $\Delta H°$ for the following reaction.

CH_3CH_2-Br + $H_2O \rightarrow CH_3CH_2$-OH + HBr

[Bond dissociation energy for CH_3CH_2-Br = 285 KJ/mol, H-OH = 498 KJ/mol, CH_3CH_2-OH = 393 KJ/mol and H-Br = 368 KJ/mol]

(a) −761 KJ/mol (b) 22 KJ/mol (c) 783 KJ/mol (d) 761 KJ/mol

10. Which of the following compounds is 100% enol?



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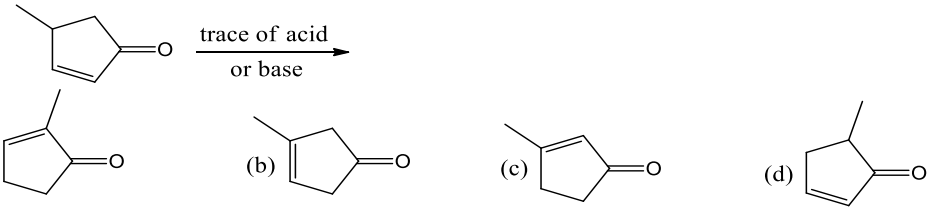

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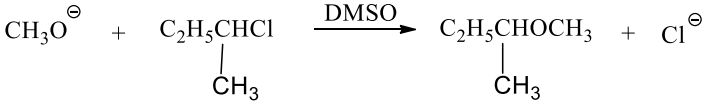
(a) $MeNH_2$ (b) NH_3 (c) Me_3N (d) Me_2NH

13. What is the mechanism and configuration of the product of the following nucleophilic substitution reaction?



(a) S_N^i mechanism and retention of the product

(b) both S_N1 and $S_N2$mechanism and racemization of the product

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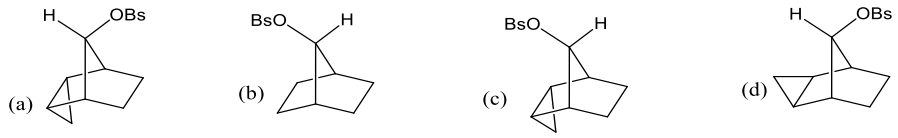
14. Which of the following compounds undergoes solvolysis faster?



15. Identify the product for the following elimination reaction.