IIT-JAM CHEMISTRY

TEST : REACTION MECHANISM

Time : 45 Minutes **Date : 07-10-2017**

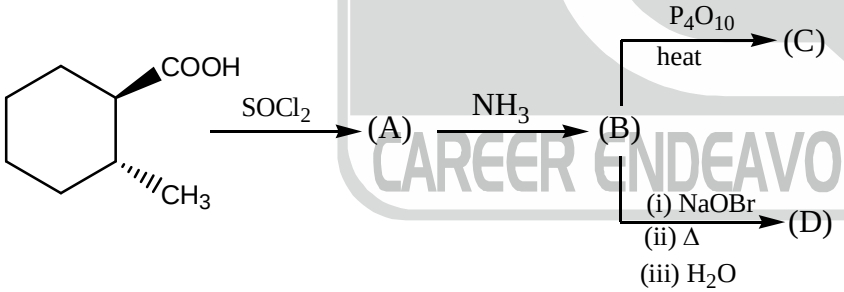
M.M. : 35

INSTRUCTION:

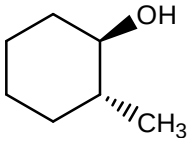
1. **Part-A** contains **10 Multiple Choice Questions (MCQ)**. Each question has 4 choices (a), (b), (c) and (d), for its answer, out of which ONLY ONE is correct. From **Q.1 to Q.5** carries **1 Mark** and **Q.6 to Q.10** carries **2 Marks** each.
2. **Part-B** contains **5 Multiple Select Questions (MSQ)**. Each question has 4 choices (a), (b), (c) and (d) for its answer, out of which ONE or MORE than ONE is/are correct. For each correct answer you will be awarded **2 marks**.
3. **Part-C** contains **6 Numerical Answer Type (NAT)** questions. **Q.16 to Q.17** carry **1 Mark** and **Q.18 to Q.21** carries **2 Marks** each. For each NAT type question.
4. In all sections, questions not attempted will result in zero mark. In **Part–A (MCQ)**, wrong answer will result in negative marks. For all **1 mark questions, 1/3 marks** will be deducted for each wrong answer. For all **2 marks questions, 2/3 marks** will be deducted for each wrong answer. In **Part–B (MSQ)**, there is no negative and no partial marking provisions. There is no negative marking in **Part–C (NAT)** as well.

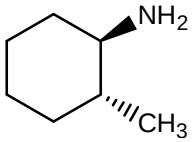
PART-A

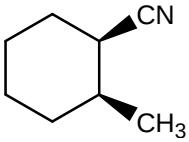
Q.1 to Q.05: Carry 1 Mark each.

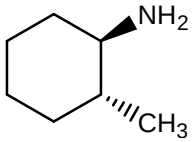
1. 

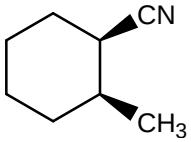
Product C and D is respectively

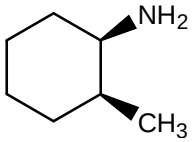
(a) 

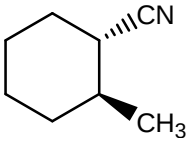


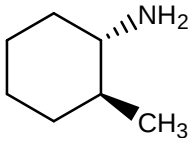
(b) 

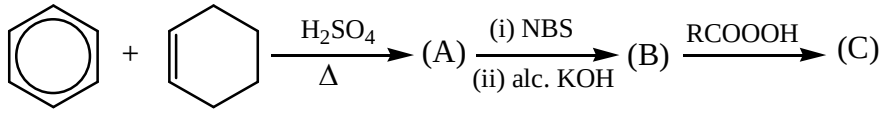


(c) 

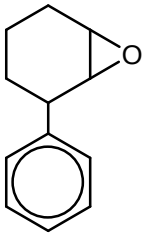


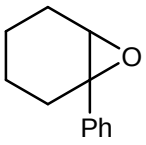
(d) 

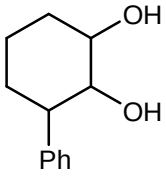


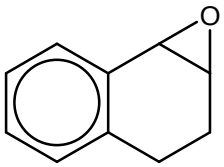
2. 

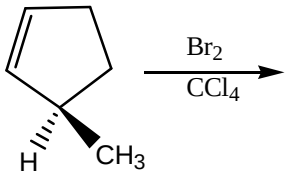
The product (C) is

(a) 

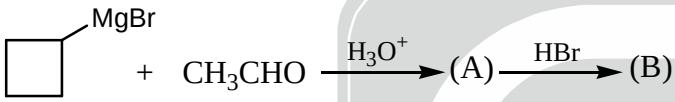
(b) 

(c) 

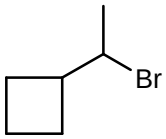
(d) 

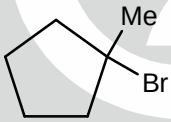
3. 

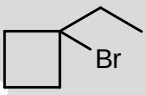
(a) diastereomers (b) recemic mixture (c) meso (d) pure enantiomers

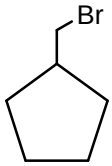
4. 

The product (B) is

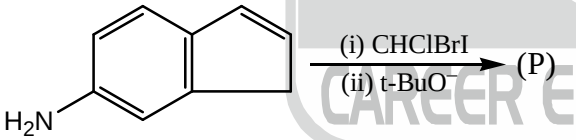
(a) 

(b) 

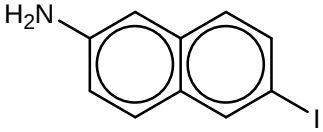
(c) 

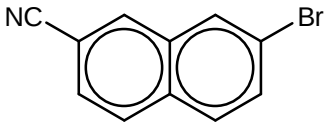
(d) 

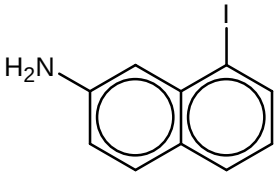
5. In the reaction,

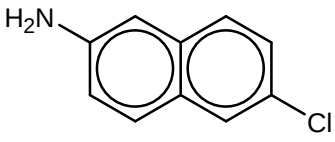


The product (P) is

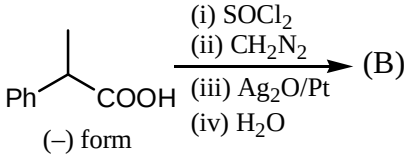
(a) 

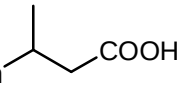
(b) 

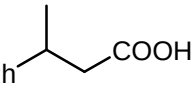
(c) 

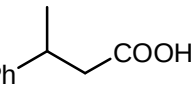
(d) 

Q.6 to Q.10: Carry 2 Marks each.

6. 

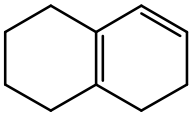
(a) (+) 

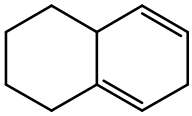
(b) (–) 

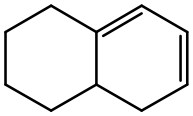
(c) $(\pm)$ 

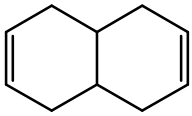
(d) none

7. Correct order of heat of hydrogenation of following compounds of

(1) 

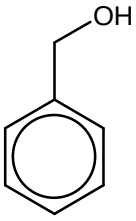
(2) 

(3) 

(4) 

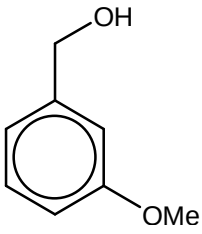
(a) 3 > 1 > 2 > 4 (b) 1 > 3 > 2 > 4 (c) 4 > 2 > 3 > 1 (d) 4 > 3 > 2 > 1

8. Give the decreasing order of the following compounds with HBr

(1) 

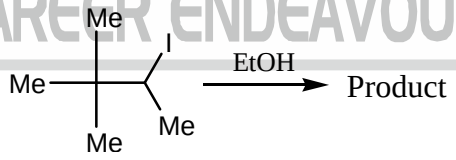
(2) 

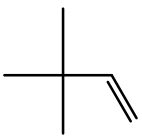
(3) 

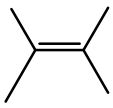
(4) 

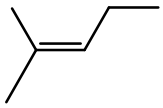
(a) 3 > 4 > 2 > 1 (b) 3 > 2 > 4 > 1 (c) 3 > 2 > 1 > 4 (d) 2 > 3 > 4 > 1

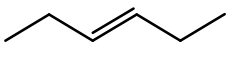
9. Product of the following reaction?

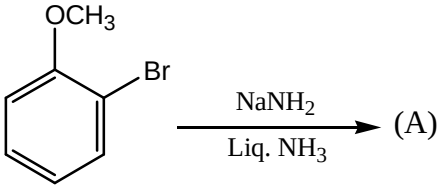


(a) 

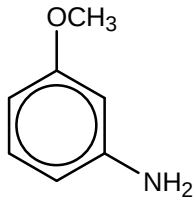
(b) 

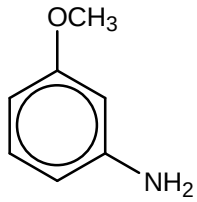
(c) 

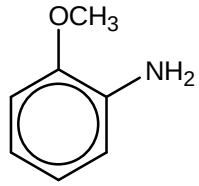
(d) 

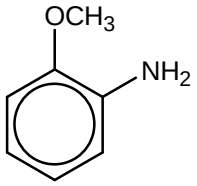
10. 

The major product and reaction is

(a)  cine substitution

(b)  addition elimination

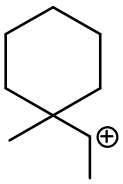
(c)  S_N2

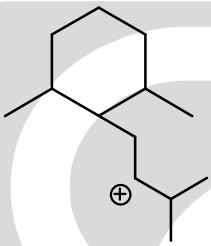
(b)  S_N1

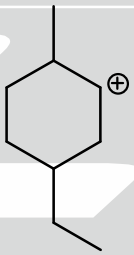
PART-B

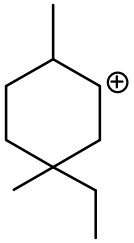
Q.11 to Q.15: Carry 2 Marks each.

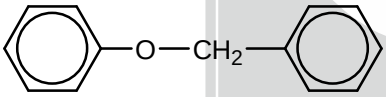
11. Which of the following will rearrange?

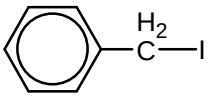
(a) 

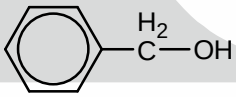
(b) 

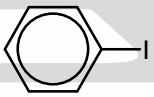
(c) 

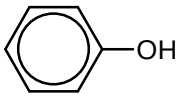
(d) 

12. The ether  when treated with HI produces?

(a) 

(b) 

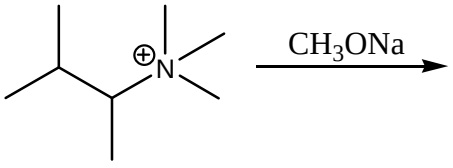
(c) 

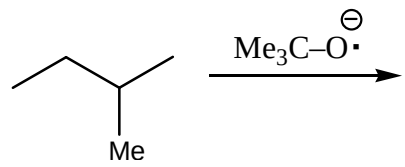
(d) 

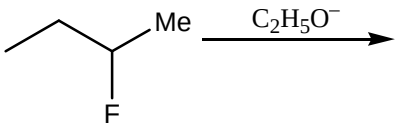
13. In which reactions intermediate is nitrenes

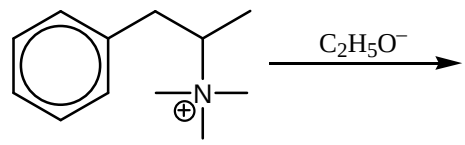
(a) Rieman Tiemann reaction
(b) Hoffmann rearrangement
(c) Curtius reaction
(d) Carbyl ammine reaction

14. Which of the following give Hoffmann alkene?

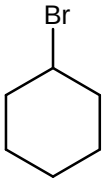
(a) 

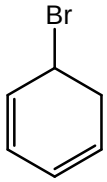
(b) 

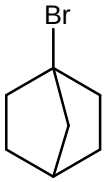
(c) 

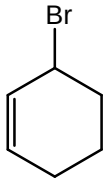
(d) 

15. Rate of S_N2 reaction is considerable in

(a) 

(b) 

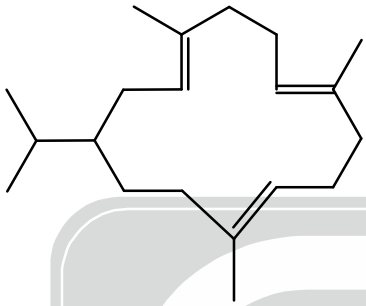
(c) 

(d) 

PART-C

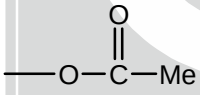
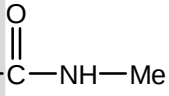
Q.16 to Q.17: Carry 1 Mark each.

16. How many product will be formed on ozonolysis of following compound



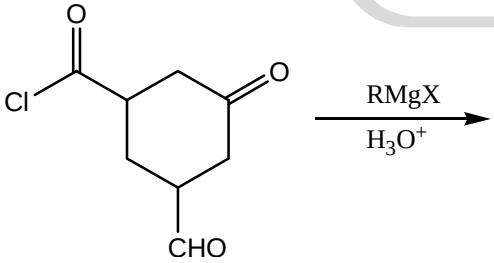
17. How many groups are O/P directive in following groups

(1) $-NH_2$ (2) – CHO (3) – N = O (4) – COOH

(5) –OMe (6)  (7) $-C_2H_5$ (8) 

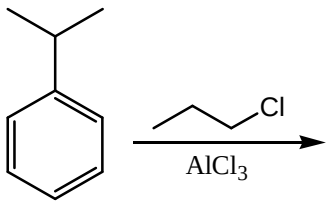
(9) $-N=NH_2$ (10) $-SO_3H$

Q.18 to Q.20: Carry 2 Marks each.

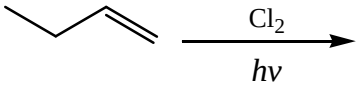
18. 

How many moles of RMgX will be used in above reaction?

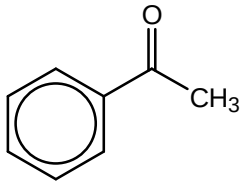
19. How many product will be formed the following reaction is

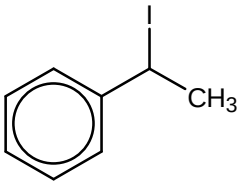


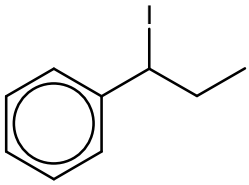
20. How many monochlorinated products are possible including stereoisomer?

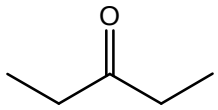


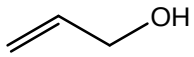
21. How many compounds gives haloform reaction?

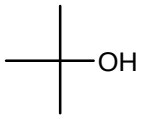
(1) 

(2) 

(3) 

(4) 

(4) 

(5) 

CAREER ENDEAVOUR
Best Institute for IIT-JAM, NET & GATE

IIT-JAM CHEMISTRY

TEST : REACTION MECHANISM

Time : 45 Minutes **Date : 07-10-2017**

M.M. : 35

ANSWER KEY

Part - A

1. (b)	**2. (b)**	**3. (a)**	**4. (b)**	**5. (d)**
6. (b)	**7. (c)**	**8. (c)**	**9. (b)**	**10. (a)**

Part - B

11. (a,b,c,d)	12. (a,d)	13. (b,c)	14. (a,c,d)	15. (a,b,d)

Part - C

16. (3)	17. (6)	18. (4)	19. (4)	20. (3)
21. (2)				