

PE-263-CV-19
M.Sc. CHEMISTRY (2nd Semester)
 Examination, June 2022
 ORGANIC CHEMISTRY

Time : Three Hours]

[Maximum Marks : 80
 [Minimum Pass Marks : 29

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

Section-A

1. Answer the following short answer questions:

2x10=20

- (a) Which one amongst the following will be least reactive in SE_2 (back) reaction (L=leaving group) and explain.
 i). $Me - L$ ii). $Me_2CH - L$ iii). $Me_3C - L$ iv). $Et - L$
- (b) Write role of conc. NH_3 in Nitration of benzene.
- (c) Using the given code arrange the following compounds in decreasing order of reactivity towards an electrophile and why?

Benzene

Chlorobenzene

Phenol

Aniline

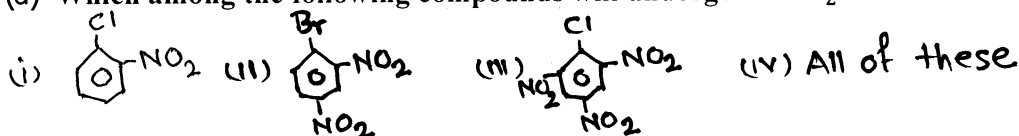
A

B

C

D

- i). $A > B > C > D$ ii). $D > C > A > B$ iii). $C > D > A > B$ iv). $B > A > C > D$
- (d) Which among the following compounds will undergo $ArSN_2$ reaction and why?



- (e) What do you mean by neighboring group assistance in free radical reaction.
- (f) Alkene is more reactive than alkyne for electrophilic reaction why?
- (g) What is ipso attack?
- (h) How substrate structure effect rate of E_2 reaction.
- (i) What is Michael reaction.
- (j) How alkyl halide give nucleophile substitution as well as elimination reaction?

Section-B

12x5=60

Answer the following Long-Answer questions:

2. Write short notes on:-

- a). Factors affecting reactivity in SE reactions.
 b). Mechanism of aliphatic diazonium coupling.
 c). Mechanism of Halogenation of aldehyde & Ketone.

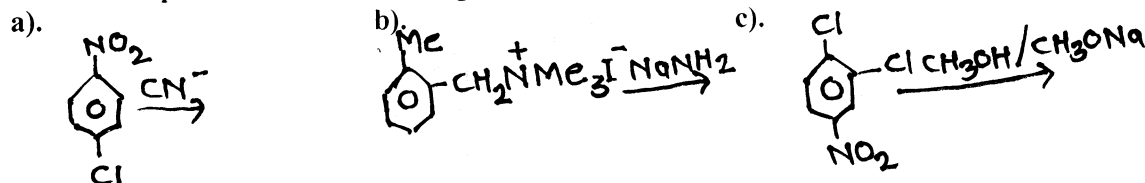
OR

- a). Explain Vilsmeier reaction.
 b). Gattermann Koch reaction.

3. Explain neighboring group participation mechanism by considering oxygen, sulphur and halogen as an example.

OR

Predict the product in the following reaction and outline the mechanism of each reaction.



4. Explain the mechanism of formation of cyclic ethers from alcohol and lead triacetate.

OR

Write short notes on mechanism of following reaction.

- a). allylic halogenation of alkane. b). Free radical substitution mechanism.
c). Hunsdiecker reaction.
5. What do you mean by epoxidation. Explain with the help of various examples.

OR

- a). Explain the mechanism of Knoevenagel reaction.
b). Explain the mechanism of Benzoin reaction.
6. Explain why E-2 is most common elimination reactions among E2, E1 and E1cB?

OR

Assign A $\rightarrow$ F in the given reaction.

