

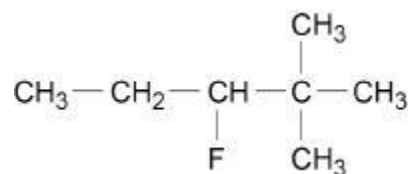
Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

What is the IUPAC name for this compound?



- A 2-dimethyl-3-fluoropentane ☐
- B 2,2-dimethyl-3-fluoropentane ☐
- C 3-fluoro-2,2-dimethylpentane ☐
- D 3-fluoro-2-dimethylpentane ☐

(Total 1 mark)

Q2.

Which compound has the lowest relative molecular mass?

A ethanoic acid

☐

B 1-fluoropropane

☐

C propanenitrile

☐

D propylamine

☐

(Total 1 mark)

Q3.

Which has *E-Z* isomers?

A $\text{C}_2\text{H}_2\text{Br}_2$

☐

B $\text{C}_2\text{H}_3\text{Br}$

☐

C $\text{C}_2\text{H}_4\text{Br}_2$

☐

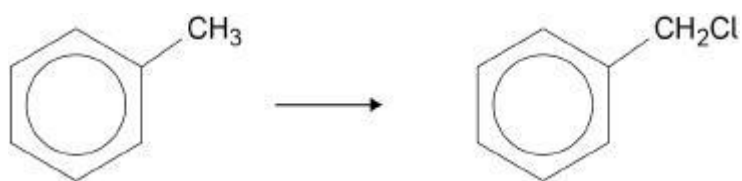
D $\text{C}_2\text{H}_5\text{Br}$

☐

(Total 1 mark)

Q4.

Which is the mechanism for this conversion?

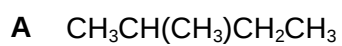
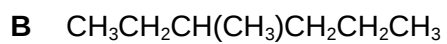
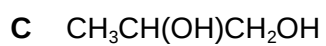
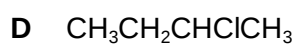


- | | |
|-------------------------------------|-----------------------|
| A Addition-elimination | ☐ |
| B Electrophilic substitution | ☐ |
| C Free-radical substitution | ☐ |
| D Nucleophilic substitution | ☐ |

(Total 1 mark)

Q5.

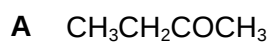
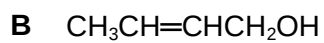
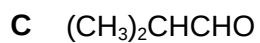
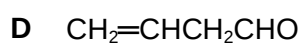
Which does **not** contain an asymmetric carbon atom?

☐☐☐☐

(Total 1 mark)

Q6.

Which compound is **not** an isomer of the following compound?

☐☐☐☐

(Total 1 mark)

Q7.

How many isomers are there of $\text{C}_3\text{H}_9\text{N}$?

A 2

☐

B 3

☐

C 4

☐

D 5

☐

(Total 1 mark)

Q8.

Which species can act as a nucleophile?

A NH_4^+

☐

B CH_3OH

☐

C CH_4

☐

D H^+

☐

(Total 1 mark)

Q9.

Methylbenzene reacts with a mixture of concentrated nitric acid and concentrated sulfuric acid.

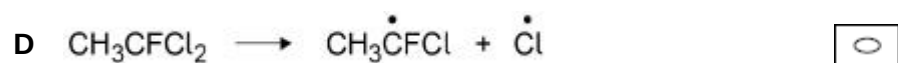
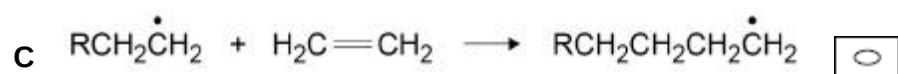
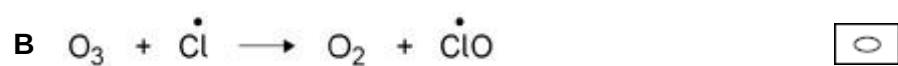
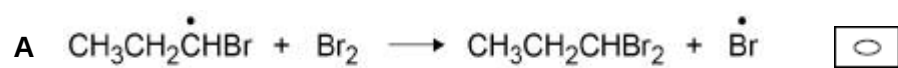
What is the name of the mechanism for this reaction?

- A Electrophilic addition ☐
- B Electrophilic substitution ☐
- C Nucleophilic addition ☐
- D Nucleophilic substitution ☐

(Total 1 mark)

Q10.

Which equation represents an initiation step?



(Total 1 mark)

Q11.

How many structural isomers with an unbranched carbon chain have the molecular formula $\text{C}_4\text{H}_8\text{Br}_2$?

A 4

☐

B 5

☐

C 6

☐

D 7

☐

(Total 1 mark)

Q12.

Which can be both an empirical and molecular formula of a stable compound?

A CH_2O

☐

B P_4O_{10}

☐

C NH_2

☐

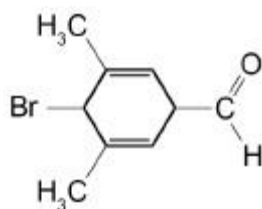
D CH_3

☐

(Total 1 mark)

Q13.

Which statement is correct about the molecule shown?



- A** It reacts with HBr in an electrophilic substitution reaction.
- B** It reacts with NaBH₄ in a nucleophilic addition-elimination reaction.
- C** It reacts with ethanolic KOH in an elimination reaction.
- D** It reacts with KCN in a nucleophilic substitution reaction.

☐☐☐☐

(Total 1 mark)

Q14.

How many structural isomers with the molecular formula $\text{C}_5\text{H}_{10}\text{O}$ react with Tollens' reagent?

A 3

☐

B 4

☐

C 5

☐

D 6

☐

(Total 1 mark)

Q15.

Which compound is a structural isomer of Z-but-2-ene?

A butane ☐

B *E*-but-2-ene ☐

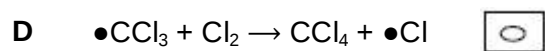
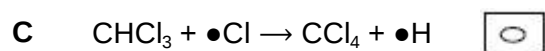
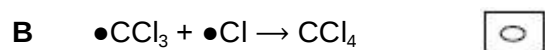
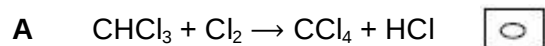
C cyclobutane ☐

D methylbut-2-ene ☐

(Total 1 mark)

Q16.

Which equation is a propagation step in the conversion of trichloromethane into tetrachloromethane by reaction with chlorine in the presence of ultraviolet light?



(Total 1 mark)

Q17.

How many structural isomers are there with the molecular formula $\text{C}_3\text{H}_6\text{BrCl}$?

A 4 ☐

B 5 ☐

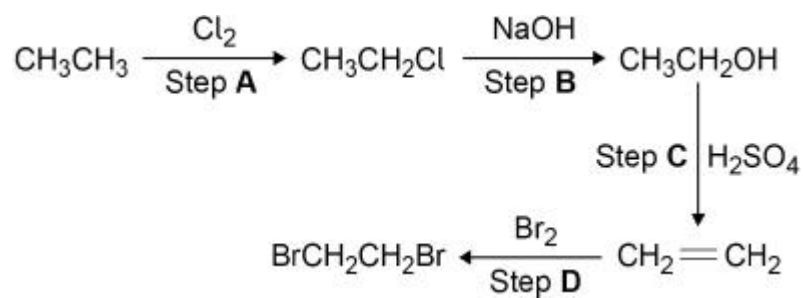
C 6 ☐

D 7 ☐

(Total 1 mark)

Q18.

The reaction sequence shows how CH_3CH_3 can be converted into $\text{BrCH}_2\text{CH}_2\text{Br}$



Which step occurs by nucleophilic substitution?

A Step A ☐

B Step B ☐

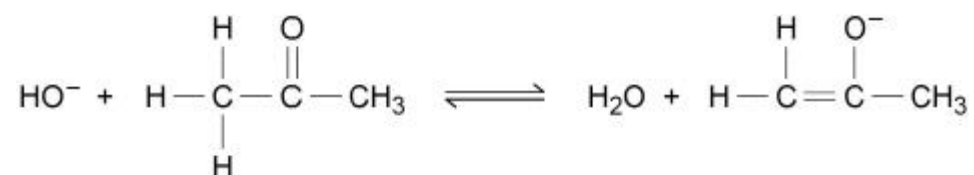
C Step C ☐

D Step D ☐

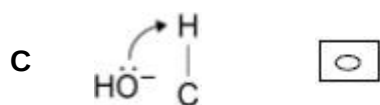
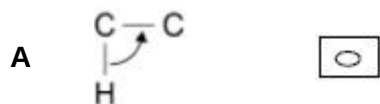
(Total 1 mark)

Q19.

In concentrated alkali, propanone reacts with hydroxide ions to form an equilibrium mixture as shown.



Which curly arrow does **not** appear in the mechanism of this reaction?



(Total 1 mark)

Q20.

Which compound does **not** show stereoisomerism?

- A** 1,2-dichloropropene ☐
- B** 1,2-dichloropropane ☐
- C** 1,3-dichloropropene ☐
- D** 1,3-dichloropropane ☐

(Total 1 mark)