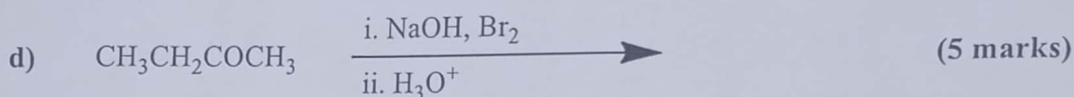
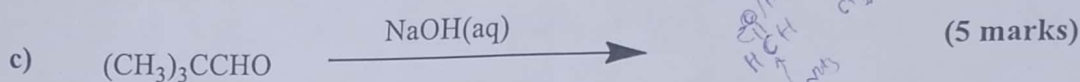
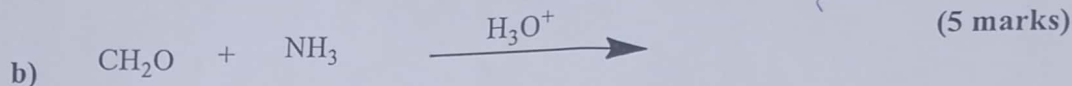


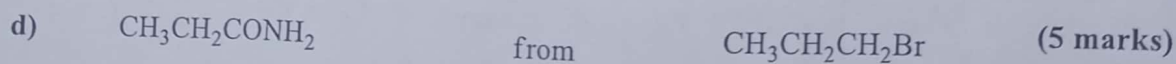
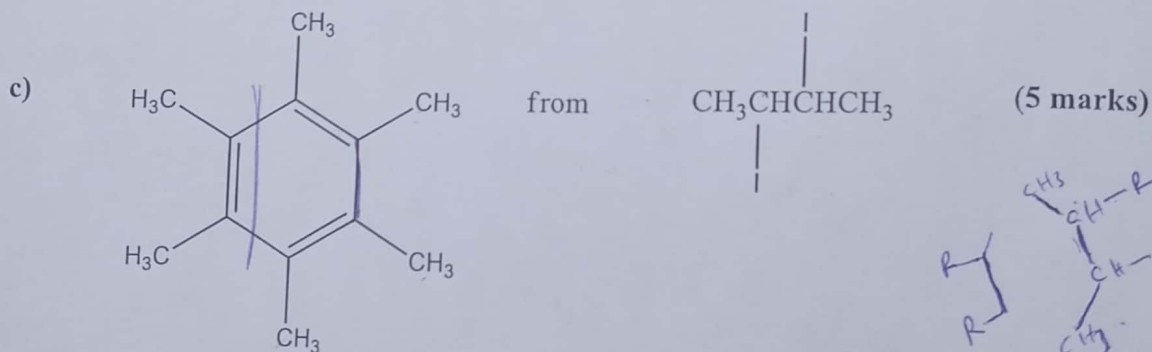
Question One

- Complete the following chemical equations and outline the reaction mechanisms

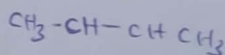


Question Two

- Show the reaction steps/ reagents involved in the following organic chemistry conversions: -



carbonyl



Question Three

Write short notes on the following chemical reactions

- a) Iodoform reaction (4 marks)
- b) Aldol condensation (4 marks)
- c) Cannizzaro reaction (4 marks)
- d) Gilman synthesis (4 marks)
- e) Lucas' reaction (4 marks)

Question Four

A hydrocarbon Q has 89.5% carbon and the rest hydrogen. It has vapour density of 67 and burns with heavy yellow sooty flame.

- a) Calculate the empirical formula of Q. (4 marks)
- b) Determine the molecular formula of Q. (4 marks)
- c) Write down the names and structures of chain isomers of Q. (6 marks)
- d) State the reagent that can be used to distinguish between compound Q and a phenol, and in each case, write the observation with each compound upon reaction. (6 marks)

Question Five

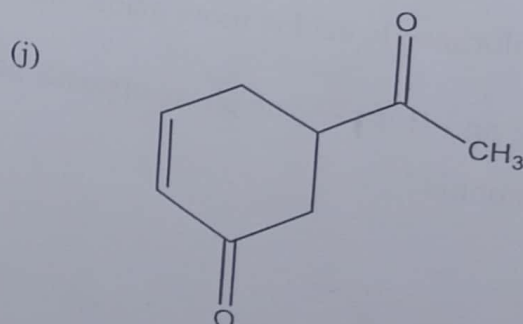
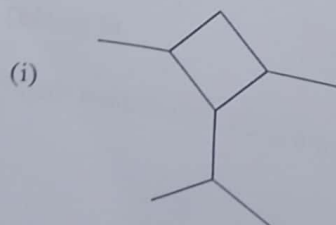
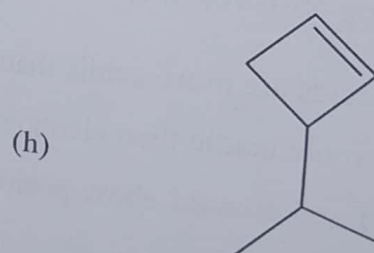
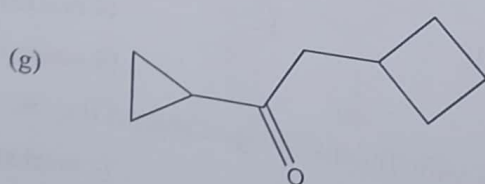
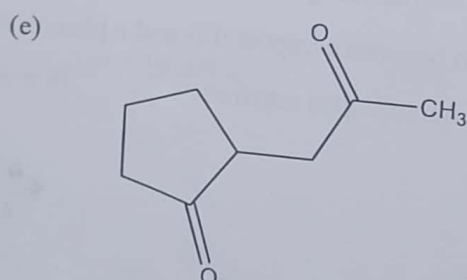
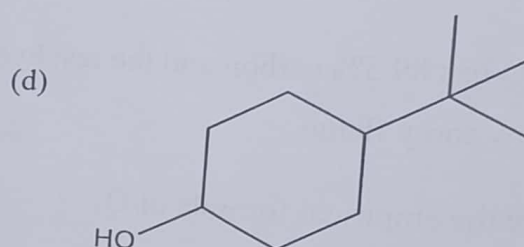
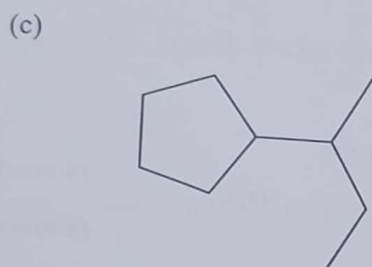
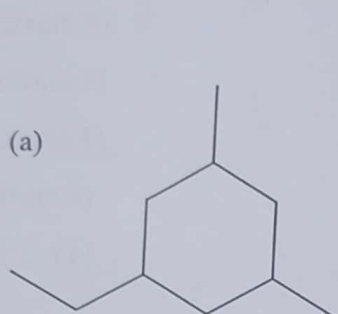
Explain the following observed chemical phenomena

- (a) Carboxylic acids are more acidic than alcohols. (4 marks)
- (b) Phenols are more acidic than alcohols. (4 marks)
- (c) Formic acid and ethanol show positive tests with Tollens's reagent and yet they are not aldehydes. (4 marks)
- (d) Chloroacetic acid is more acidic than acetic acid. (4 marks)

But-1-yne and But-2-yne show opposite acidic properties when treated with sodium metal in liquid ammonia (4)

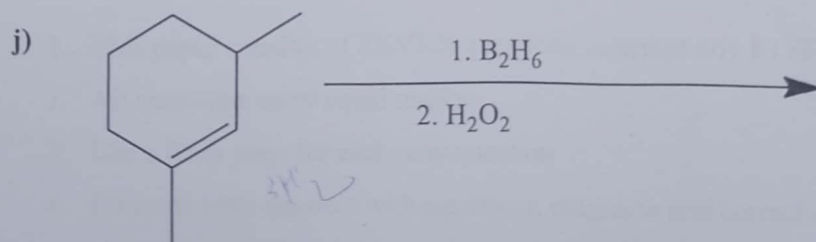
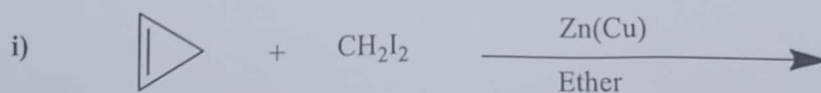
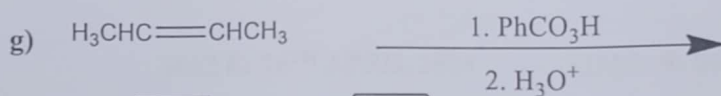
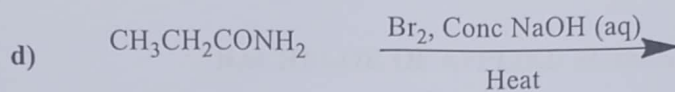
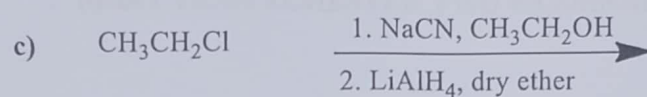
Question Six

Write the systematic names of the following organic compounds. (2 mark @)



Question Seven

Complete the following equations and write the name(s) of the major product(s) formed in each reaction. (2 marks @)



THE END