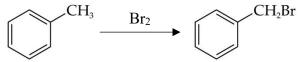
Quiz (Typical reactions of various functional groups)

Section A: Multiple-choice

1. Methylbenzene can be converted to benzyl bromide via the following reaction:



Which of the following statements about the reaction is INCORRECT?

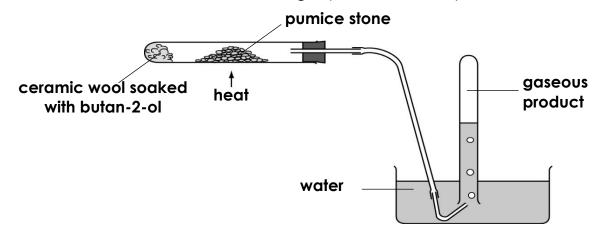
- A. Light is required to initiate the reaction.
- B. The reaction involved is substitution reaction.
- C. Bromine solution is decolorized.
- D. The percentage yield of benzyl bromide is high.
- 2. What is the major product of the reaction between 2-methylbut-1-ene and concentrated hydrochloric acid?
 - A. 1-chloro-2-methylbutane
- B. 2-chloro-2-methylbutane
- C. 2-chloro-3-methylbutane
- D. 1-chloro-3-methylbutane
- 3. When an alcohol (C₄H₁₀O) is oxidized, how many possible alkanals can be produced?
 - A. 2

B. 3

C. 4

D. 5

Questions 4 and 5 refer to the following experimental set-up:



- 4. Which of the following statements about the experiment is INCORRECT?
 - A. The reaction involved is catalytic cracking.
 - B. Pumice stone is the catalyst of the reaction.
 - C. Pumice stone can be replaced by aluminium oxide.
 - D. The gaseous product is collected by displacement of water.
- 5. Which of the following compounds can be found in the gaseous product?
 - (1) Butane
- (2) But-1-ene
- (3) But-2-ene

A. (1) only

B. (2) only

C. (1) and (3) only

D. (2) and (3) only

- 6. Butanamide is heated under reflux with dilute sodium hydroxide solution. Which of the following statements about the experiment are correct?
 - (1) The reaction involved is irreversible.
 - (2) One of the products can turn moist blue litmus paper red.
 - (3) A pungent smell can be detected.
 - A. (1) and (2) only C. (2) and (3) only

- B. (1) and (3) only D. (1), (2) and (3)
- 7. Consider the following ester:

Which of the following combinations is correct?

	Parent alcohol	Parent carboxylic acid
Α.	Ethanol	2-methylbutanoic acid
В.	Propan-1-ol	2-methylbutanoic acid
C.	2-methylbutan-1-ol	Ethanoic acid
D.	Pentan-1-ol	Ethanoic acid

- 8. An organic compound X has the following properties:
 - (1) It reacts with acidified potassium dichromate solution to give a green solution.
 - (2) It decolorizes bromine (dissolved in tetrachloromethane).
 - (3) It is a neutral liquid at room conditions.

Which of the following compounds does X probably be?

A. CH₂=CHCOOH

B. CH₃CH₂CHO

C. CH₂=CHCH₂OH

D. CH₂=CHCOOCH₃

Section B: Structured questions

This question is about the following isomeric compounds with the molecular formula C_4H_8O .

P: CH₃CH₂CH₂CHO R: CH₃CH₂COCH₃ Q: (CH₃)₂CHCHO S: CH₃CH=CHCH₂OH

- (a) Which of the above compounds is NOT a carbonyl compound?
- (b) Which of the above compounds can be reduced to give a chiral product? Give the systematic name of the chiral product.
- (c) Which of the above compounds does NOT react with acidified potassium dichromate solution? Briefly explain your answer.
- (d) Which of the above compounds can form an ester when heating with ethanoic acid under reflux? Draw the structure of the ester formed.

Suggested Answer

Section A

1.	D	5.	D
2.	В	6.	В
3.	A	7.	Α
4.	Α	8.	С

Section B

- (a) S
- (b) R Butan-2-ol
- (c) R Ketones are resistant to oxidation.