

20.2 Synthetic Routes

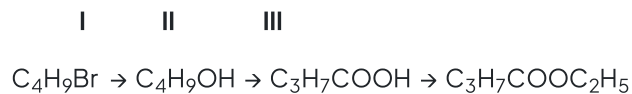
Question Paper

Course	DIPB Chemistry
Section	20. Organic Chemistry (HL only)
Topic	20.2 Synthetic Routes
Difficulty	Medium

Time allowed: 10
Score: /5
Percentage: /100

Question 1

The synthesis of ethyl butanoate can be carried out in three steps:



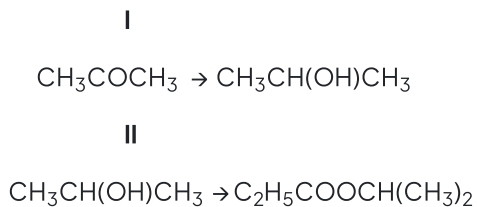
What is the correct classification of the steps?

	I	II	III
A	substitution	oxidation	condensation
B	addition	substitution	condensation
C	oxidation	substitution	condensation
D	substitution	oxidation	substitution

[1 mark]

Question 2

The synthesis of 2-propyl propanoate can be carried out in two steps:



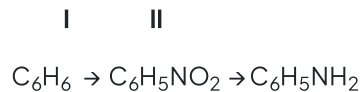
What are the reagents needed in I and II?

	I	II
A	potassium dichromate(VI)	sulfuric acid, propanoic acid
B	sodium borohydride	sulfuric acid, propanoic acid
C	sodium borohydride	sulfuric acid, ethanoic acid
D	potassium dichromate(VI)	sulfuric acid, ethanoic acid

[1 mark]

Question 3

The synthesis of phenylamine can be carried out in two steps:



What are the reaction types in I and II?

	I	II
A	oxidation	substitution
B	addition	substitution
C	substitution	reduction
D	oxidation	reduction

[1 mark]

Question 4

Which of the following reactions produces **only** pentan-2-ol?

- A. Water and pent-1-ene
- B. 1-bromopentane and ethanolic NaOH
- C. Water and pent-2-ene
- D. 2-bromopentane and ethanolic NaOH

[1 mark]

Question 5

Which compound could be X in this two step reaction pathway?



- A. $\text{C}_2\text{H}_5\text{CN}$
- B. $\text{C}_3\text{H}_7\text{Cl}$
- C. $\text{C}_3\text{H}_6\text{Cl}_2$
- D. $\text{C}_2\text{H}_5\text{COOH}$

[1 mark]



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