Unit 8 - Week 7

Course outline

How to access the portal?

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

- ○ Lecture 30 : Trapping Intermediates: Part C
- ○ Lecture 31 : Checking for Common Intermediates
- ○ Lecture 32 : Catalysis: Part A
- ○ Lecture 33 : Catalysis: Part B
- ○ Lecture 34 : Specific Catalysis
- ○ **Quiz : Assignment 7**
- ○ Week 7 Solutions
- ○ Weekly Feedback

Week 8

Live Sessions

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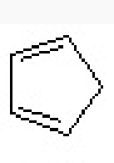
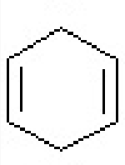
Assignment 7

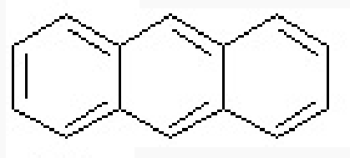
The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

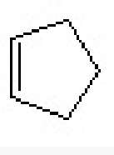
Due on 2019-09-18, 23:59 IST.

1) Which of the following structure/structures can trap the benzyne intermediate? *1 point*

☐ 

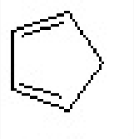
☐ 

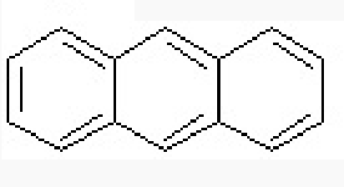
☐ 

☐ 

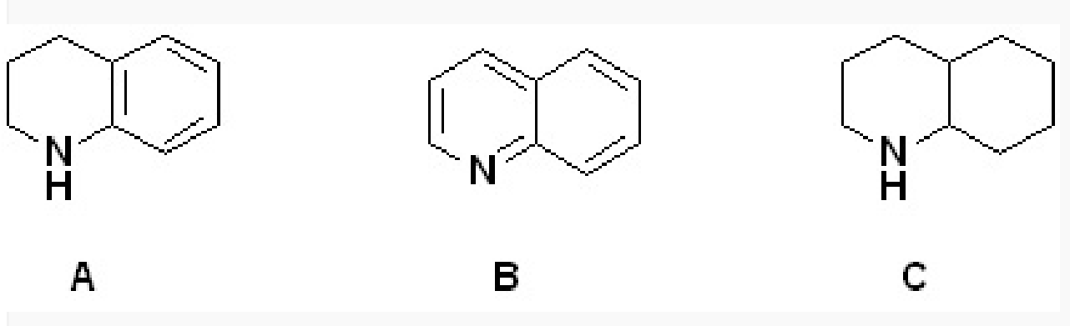
No, the answer is incorrect.
Score: 0

Accepted Answers:





2) Arrange the following set of bases in decreasing order of their basicity. *1 point*

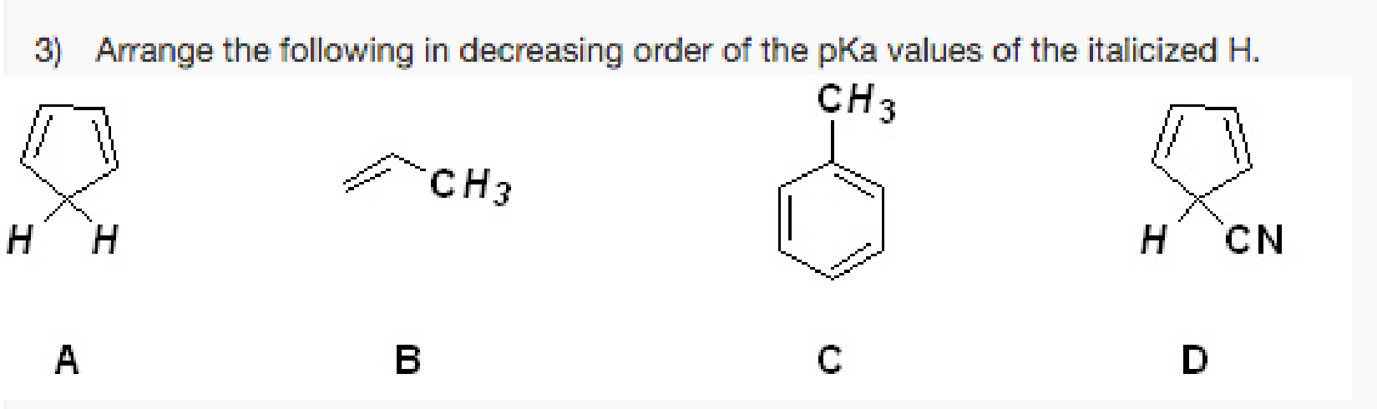


○ A > B > C
○ C > A > B
○ C > B > A
○ B > A > C

No, the answer is incorrect.
Score: 0

Accepted Answers:
C > B > A

3) Arrange the following in decreasing order of the pKa values of the italicized H. *1 point*

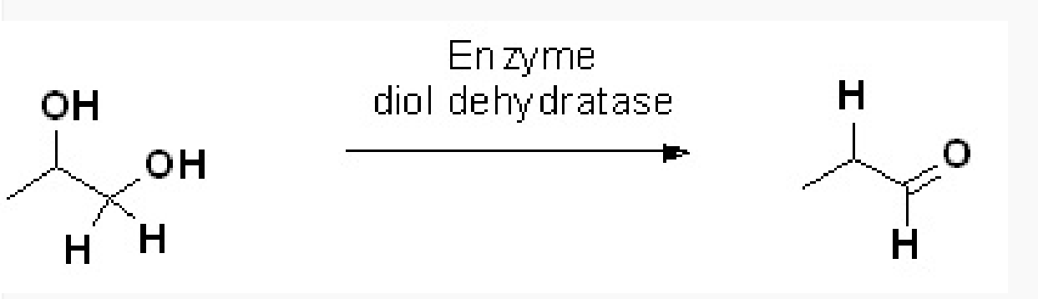


○ C > B > A > D
○ B > C > D > A
○ B > C > A > D
○ D > A > B > C

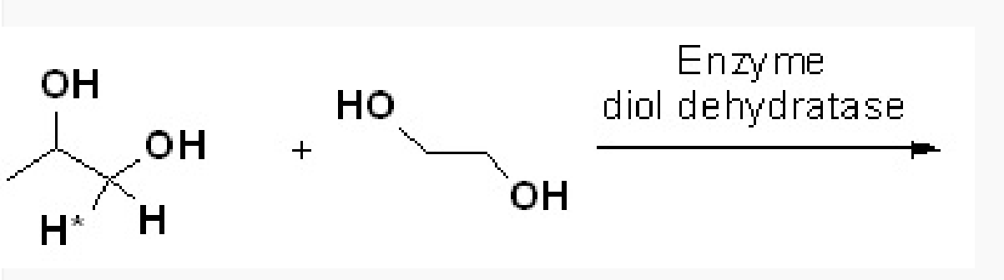
No, the answer is incorrect.
Score: 0

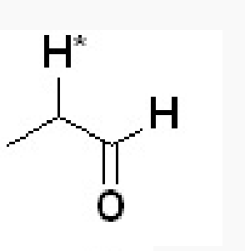
Accepted Answers:
B > C > A > D

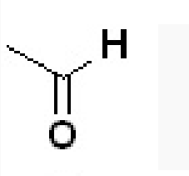
4) The enzyme catalysed reaction shown below involves the migration of a H from C1 to C2. *1 point*

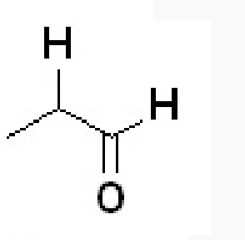


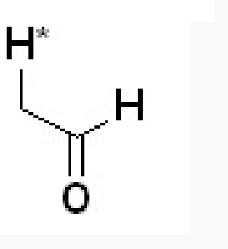
To determine if the migration was intermolecular or intramolecular, the cross-over experiment shown below with labelled reactant was carried out. The experiment indicated that the process was intermolecular. The major products formed in the reaction given below are



☐ 

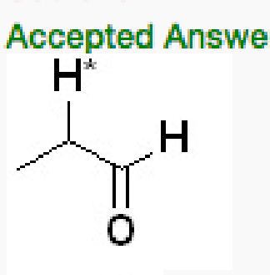
☐ 

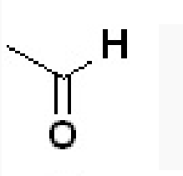
☐ 

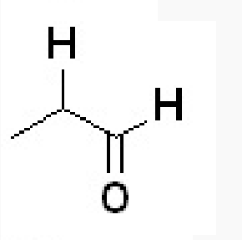
☐ 

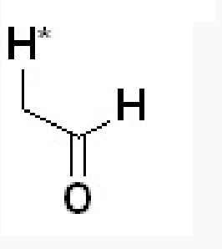
No, the answer is incorrect.
Score: 0

Accepted Answers:

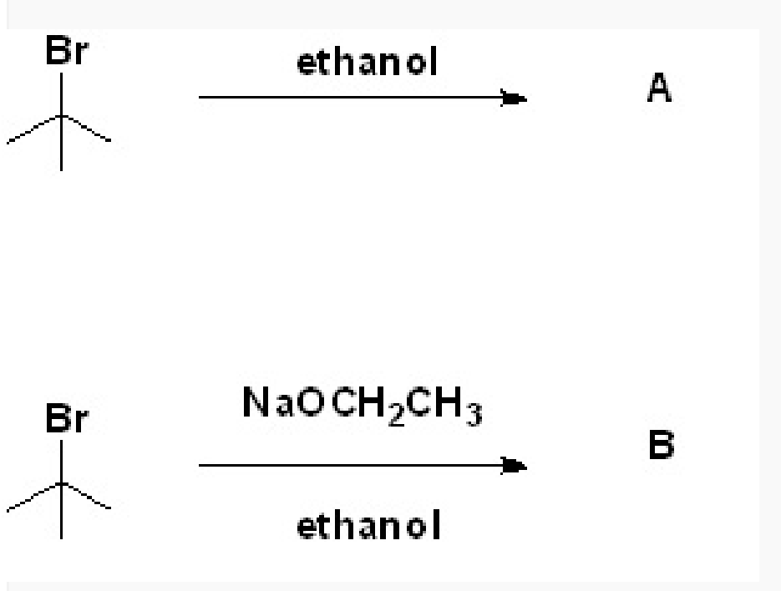


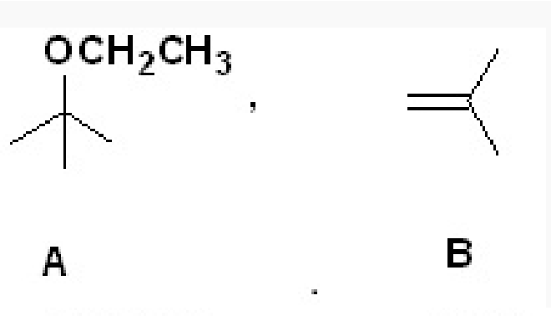


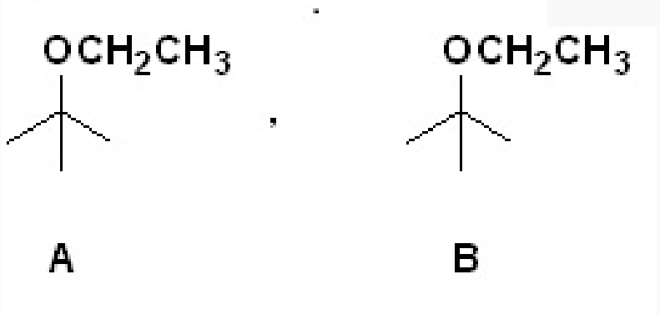


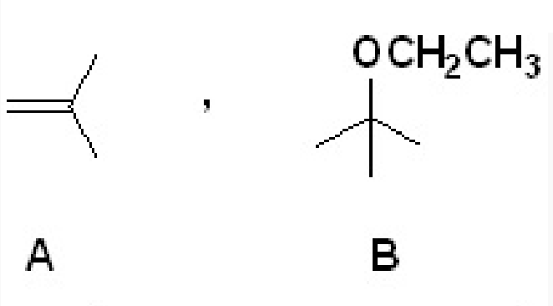


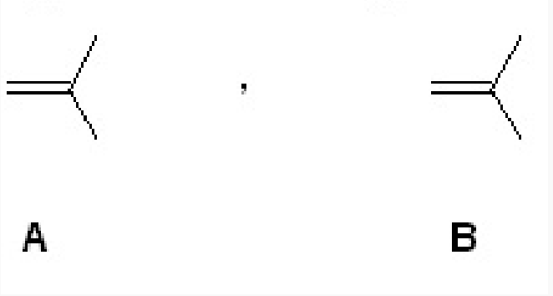
5) In the following two reactions what would be the major products A and B formed? *1 point*



○ 

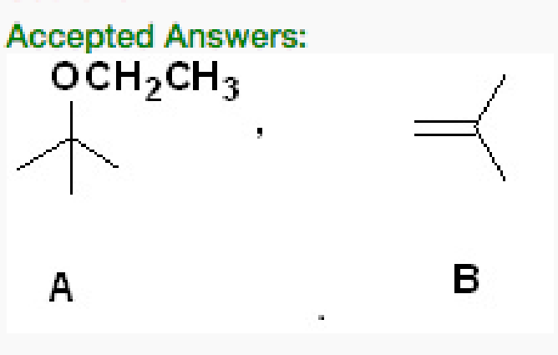
○ 

○ 

○ 

No, the answer is incorrect.
Score: 0

Accepted Answers:



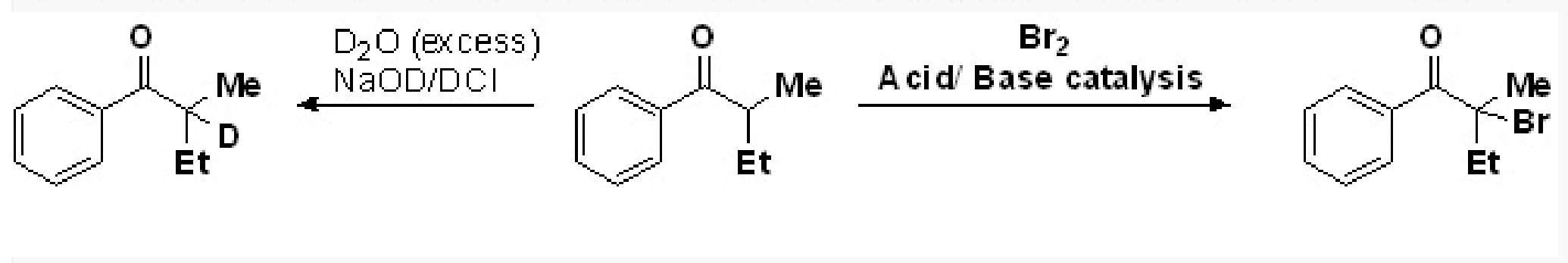
6) Which of the following statements is correct about specific acid catalysis? *1 point*

☐ At a given pH, the k_{obs} increases with the concentration of the acid used
☐ At a given pH, the k_{obs} decreases with the concentration of the acid used
☐ At a given pH, the k_{obs} does not change with the concentration of the acid used
☐ The k_{obs} value increases with the pH
☐ The k_{obs} value decreases with the pH
☐ The k_{obs} value does not change with the pH

No, the answer is incorrect.
Score: 0

Accepted Answers:
At a given pH, the k_{obs} does not change with the concentration of the acid used
The k_{obs} value decreases with the pH

7) Consider the two reactions i.e. halogenation and isotopic substitution given. When kinetics studies were carried out for both reactions, it was found that their rates were similar when identical reaction conditions i.e. acid/base were used. Based on this statement what can you infer about the reaction? *1 point*

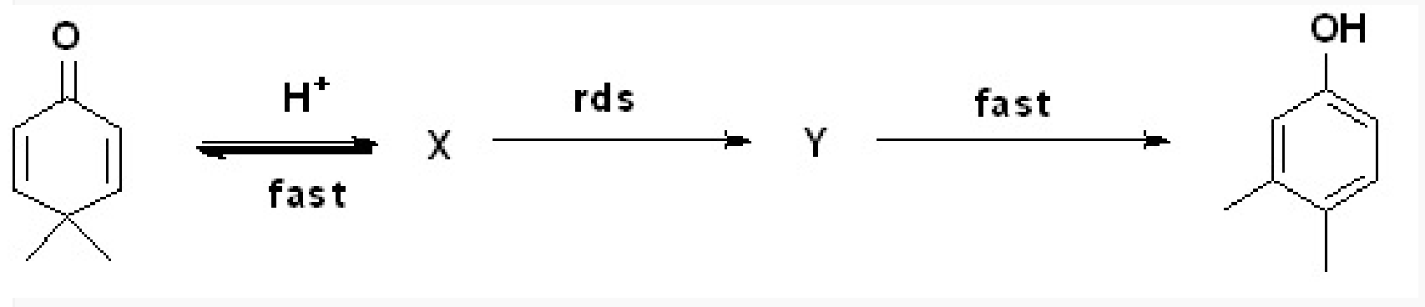


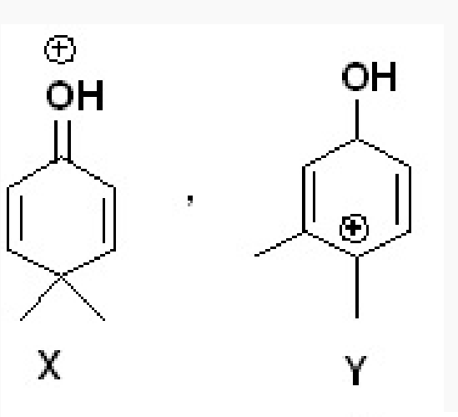
☐ Both reactions have a common intermediate and its formation is the rate determining step
☐ Both reactions have a common intermediate and its formation occurs after the rate determining step
☐ Both reactions have different intermediates
☐ The halogenation will be unaffected by concentration of bromine
☐ The halogenation will depend on the bromine concentration

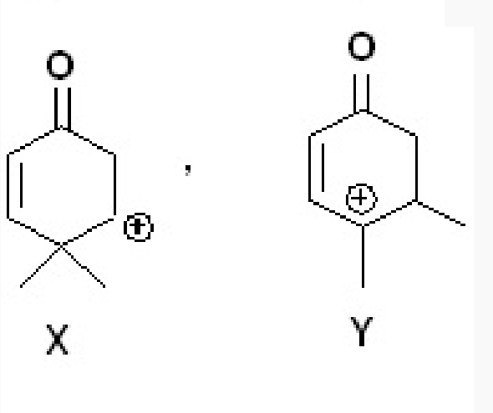
No, the answer is incorrect.
Score: 0

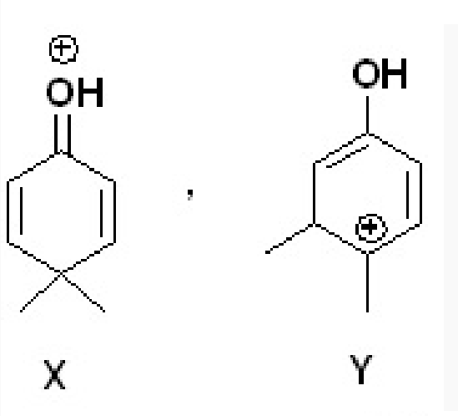
Accepted Answers:
Both reactions have a common intermediate and its formation is the rate determining step
The halogenation will be unaffected by concentration of bromine

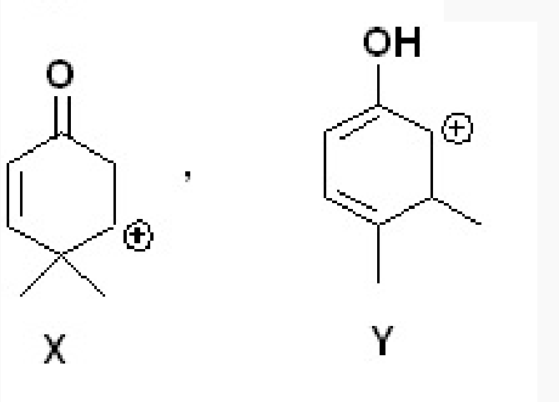
8) Identify the two intermediates X and Y formed in the following specific acid catalysed reaction. *1 point*



○ 

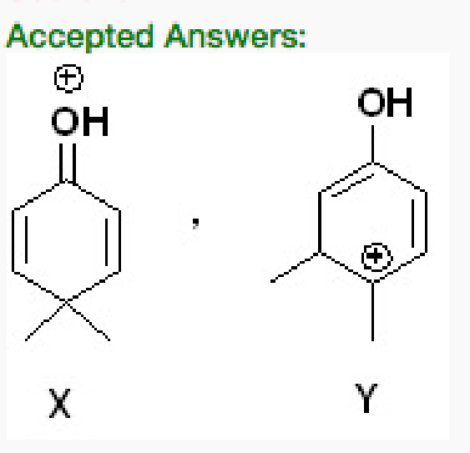
○ 

○ 

○ 

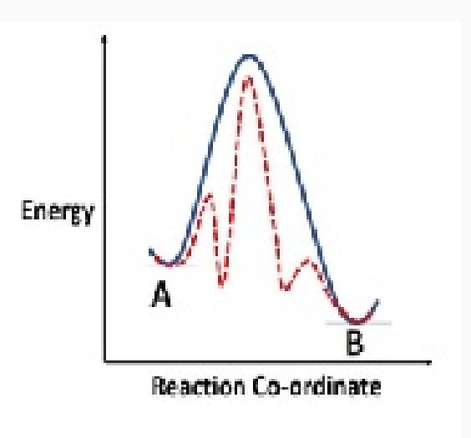
No, the answer is incorrect.
Score: 0

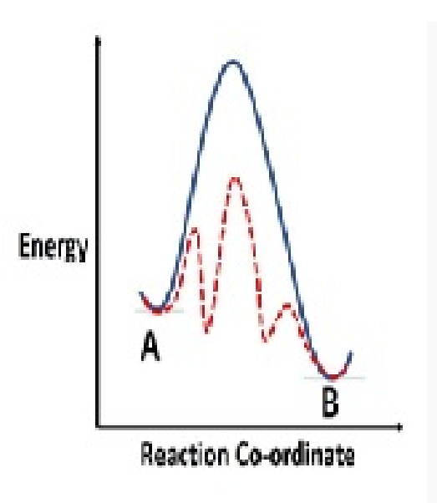
Accepted Answers:

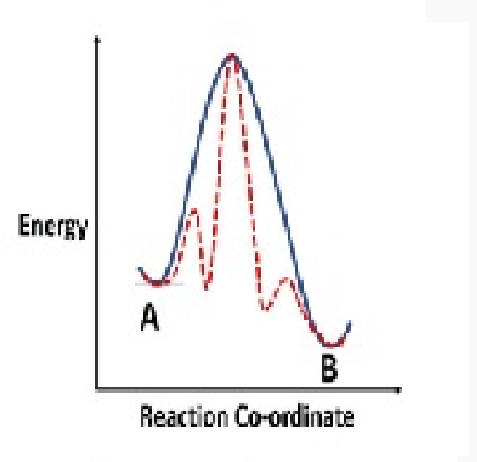


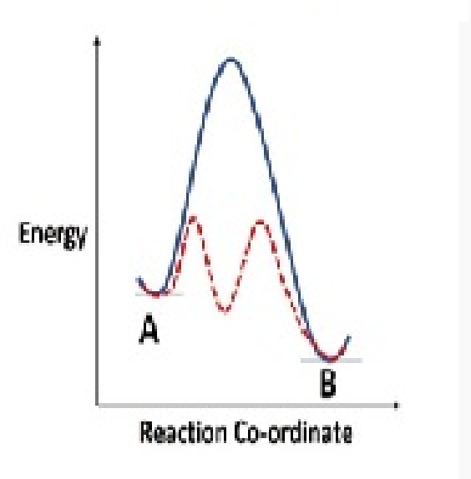
9) Given are reaction coordinate diagrams for the reaction below in the presence and absence of catalyst. Based on the reaction coordinate diagrams, which of these catalysts will lead to significant rate enhancement? *1 point*

A ⟶ B

☐ 

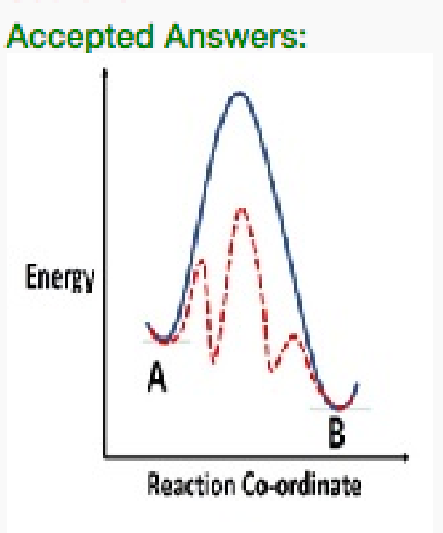
☐ 

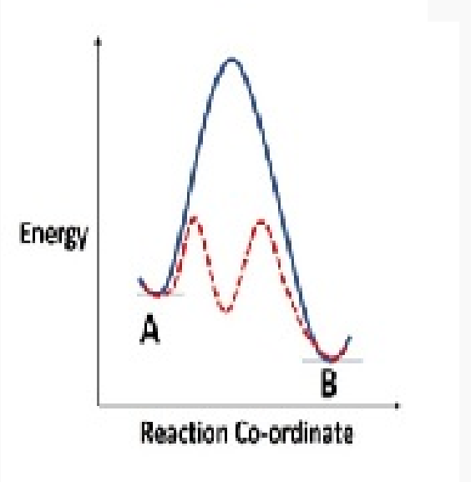
☐ 

☐ 

No, the answer is incorrect.
Score: 0

Accepted Answers:





10) Which of the following statements are true? *1 point*

☐ A catalyst introduces a new reaction pathway with a lower free energy of activation.
☐ Since Gibbs free energy is more favourable for a catalysed reaction, the yields of the product are increased by catalysis.
☐ the catalyst changes the equillibrium constant K for a given reaction.
☐ The catalyst has a greater affinity for the reactant as compared to the transition state.

No, the answer is incorrect.
Score: 0

Accepted Answers:
A catalyst introduces a new reaction pathway with a lower free energy of activation.