

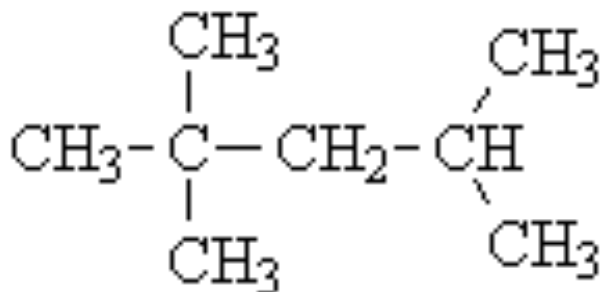
# **DAMIETTA UNIVERSITY**

## **CHEM-103: BASIC ORGANIC CHEMISTRY**

### **LECTURE 9**

**Dr Ali El-Agamey**

**(1) What is the IUPAC name for the following compound?**

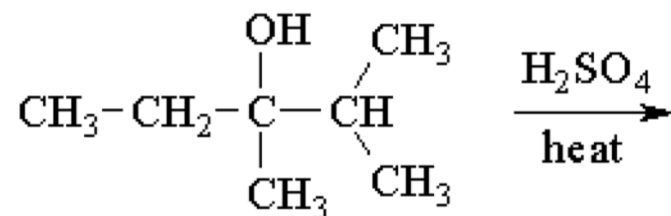


- (a) 1,3-pentamethylpropane
- (b) 1,1,3,3-tetramethylbutane
- (c) 2,4,4-trimethylpentane
- (d) 2,2,4-trimethylpentane

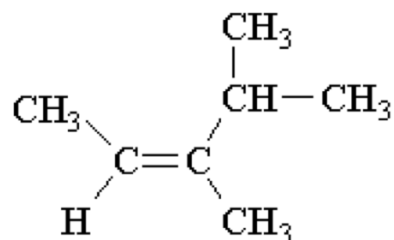
**(2) When a double bond is formed between two atoms, one of the bonds is a sigma bond and the other is a pi bond. The pi bond is created by the overlap of...**

- (a)**  $sp^2$  hybrid orbitals
- (b)**  $sp^3$  hybrid orbitals
- (c)** p orbitals
- (d)** s orbitals

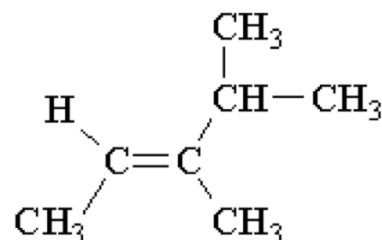
**(3) What is the major product of the following reaction? ..**



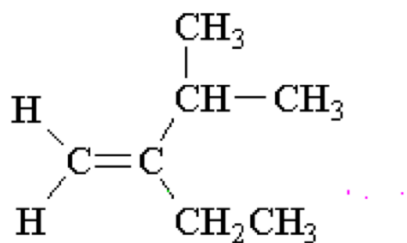
(a)



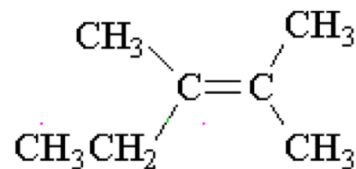
(b)



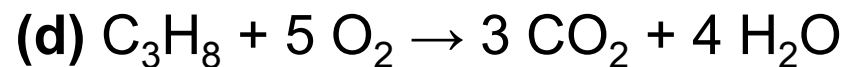
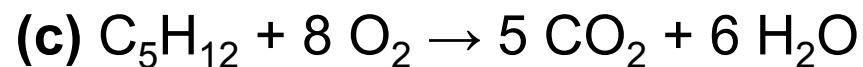
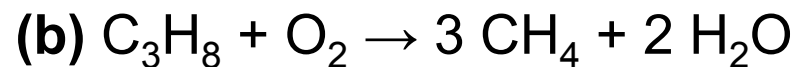
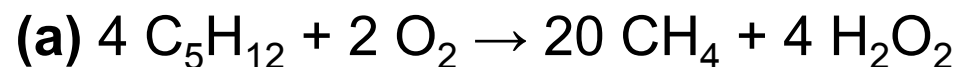
(c)



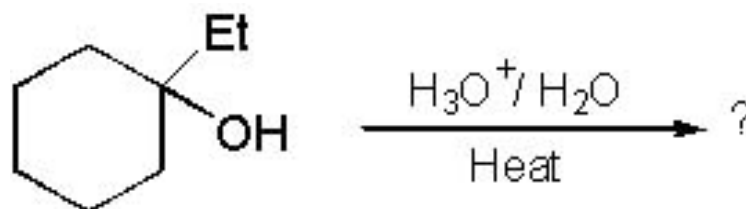
(d)



**(4) The balanced equation for the combustion of pentane is**



**(5) What are the major alkenes formed in the following reaction?**



- (a)
- (b)
- (c)
- (d)

**(6) Which product is obtained upon the reaction of (Z)-2-hexene with HBr?**

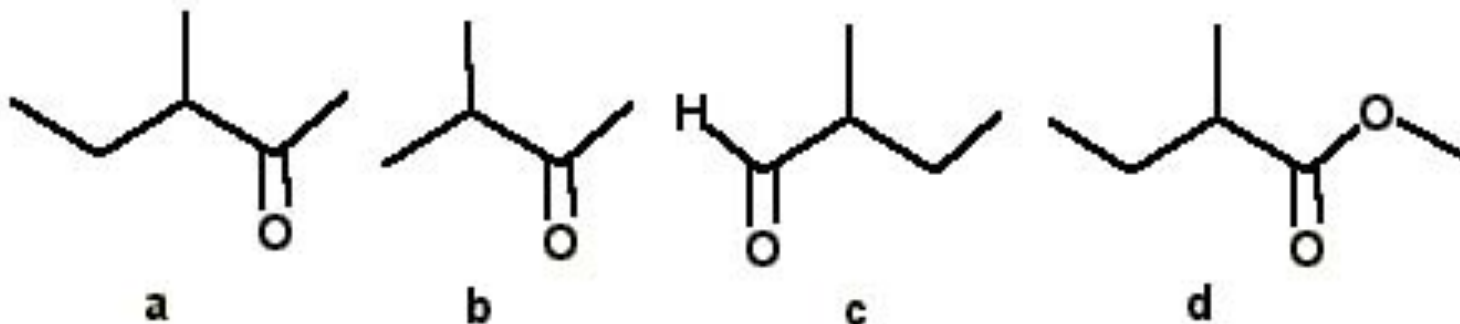
**(a) 2,3-Dibromohexane**

**(b) 2-Bromohexane**

**(c) 3-Bromohexane**

**(d) 2-Bromohexane and 3-bromohexane**

**(7) Which of the following compounds gives 3-methyl-2-butanol upon reduction with  $\text{LiAlH}_4$ ?**



**(a) a**

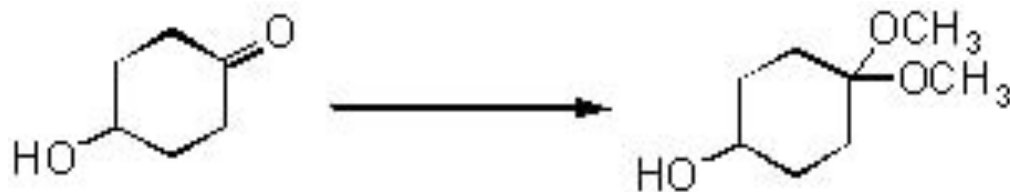
**(b) b**

**(c) c**

**(d) d**



**(8) Which of the following sets of reaction conditions will give the product indicated?**



- (a)  $(\text{CH}_3\text{O})_2\text{Ag}$ , heat
- (b)  $\text{CH}_3\text{OH}$ ,  $\text{HO}^-$ , separate water
- (c) 1)  $\text{CH}_3\text{ONa}$ , 2)  $\text{MeI}$
- (d)  $\text{CH}_3\text{OH}$ ,  $\text{H}^+$ , separate water

**(9) In which molecule is the central atom  $sp^3$  hybridized?**

A)  $\text{CH}_4$

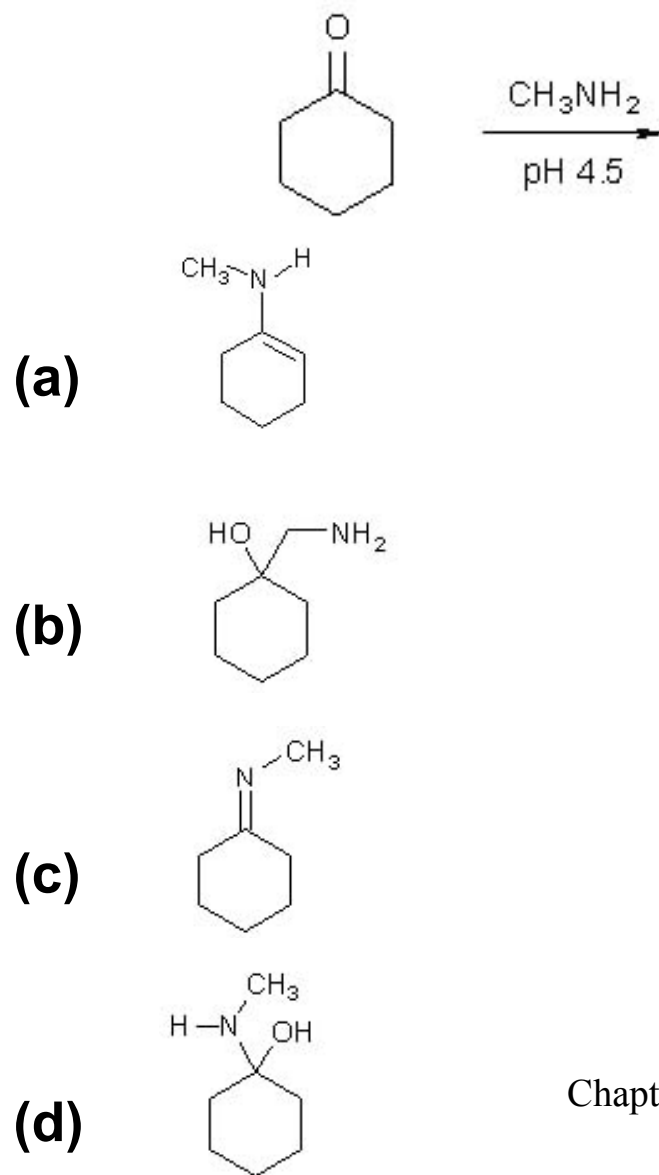
B)  $\text{NH}_3$

C)  $\text{H}_2\text{O}$

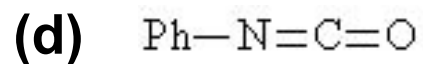
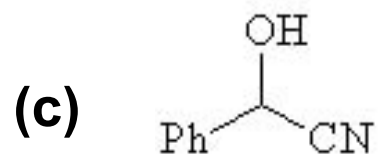
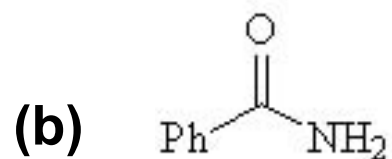
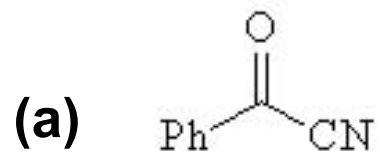
D) All of these

E) None of these

**(10) What is the product of the following reaction?**

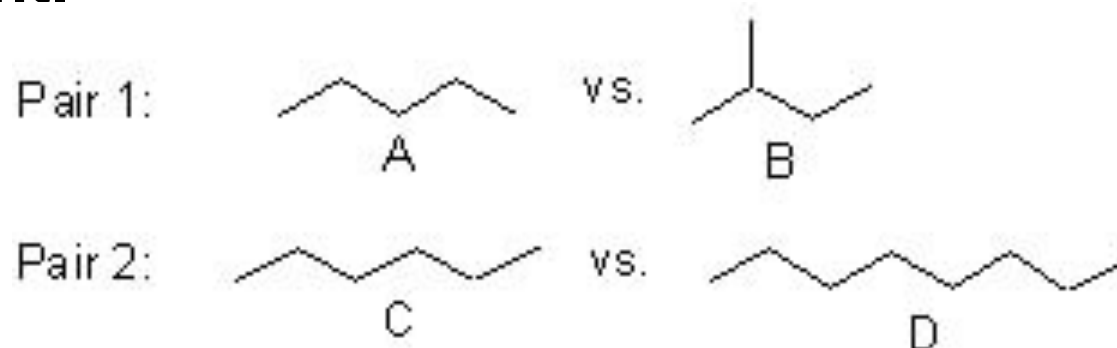


**(11) When benzaldehyde reacts with HCN and catalytic amounts of NaCN in ethanol, the product is**



# Homework: choose the correct answer

(12) For the following two pairs of molecules, identify which partner will have the higher boiling point.



- (a) Pair 1: A; Pair 2: C
- (b) Pair 1: B; Pair 2: D
- (c) Pair 1: A; Pair 2: D
- (d) Pair 1: B; Pair 2: C