**King Saud University**

**College of Science**

**Chemistry Department**

**Second Midterm Exam, Chem 145.**

**Time Allowed 1.5 hour (2-7-1435)**

**Student name:**

**Student number:**

**ملاحظة هامة**: **ستكون الإجابة الصحيحة بناء علي الإجابة المكتوبة في الجدول أدناه**

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| **الإجابة** | **رقم السؤال** | **الإجابة** | **رقم السؤال** |
| **B** | **16** | **C** | **1** |
| **C** | **17** | **C** | **2** |
| **C** | **18** | **C** | **3** |
| **D** | **19** | **A** | **4** |
| **D** | **20** | **D** | **5** |
| **A** | **21** | **A** | **6** |
| **A** | **22** | **D** | **7** |
| **D** | **23** | **A** | **8** |
| **B** | **24** | **D** | **9** |
| **B** | **25** | **D** | **10** |
| **B** | **26** | **B** | **11** |
| **D** | **27** | **C** | **12** |
| **A** | **28** | **D** | **13** |
| **C** | **29** | **C** | **14** |
| **A** | **30** | **B** | **15** |

**1) In the following general equation, the reagent (Z) must be**

A)Acetone B)Methanol C) Formaldehyde D) Acetaldehyde

**2) What is the correct name of the following compound?**

A) 3-Cyclohexyl-4-one-1-pentanal B) 3-Cyclohexyl-2-oxo-5-pentanal

C)3-Cyclohexyl-4-oxopentanal D)3-Cyclohexyl-4-ketopentanal



**3) Predict the products of the following reaction**



A)B)



C) D)

**4) Oxidation of secondary alcohol yields**

A)Ketone B) Carboxylic acid C) Aldehyde D) Epoxide

**5) What is the product of the following reaction? D**







A) B) C) D)

**6) The structure is**

A) Hemiacetal B) Ketal C) Acetal D) Hemiketal



**7) The resulting product from the reaction is**



A) B) C) D)

**8)Which of the following statement about compounds (1) and (2) is false?**



A) (1) is less soluble in water than (2) B) (1) can be easily oxidized than (2)

C) (1) has higher boiling point than (2) D) (1) and (2) are isomers



**9) What is the product of the following reaction?**



A) B)

C) D)

**10) What reagent is needed to accomplish the following transformation?**



A) K2Cr2O7 B) LiAlH4

C) KMnO4 D) PCC

**11) Ozonolysis of 2-methyl-2-butene results in the formation of**

A) Dialdehyde B)One aldehyde and one ketone

C) Two aldehydes D) Two ketones

**12) What is the product (P) of the following reaction?**



A) 4-Methylpentane B) 2-Methylpentane

C) 4-Methyl-1-pentanol D) 4-Methyl-2-pentene



**13) The reaction gives**



A) B) C) D)

**14)Which of the following statements about aldehydes is false?**

A) Can react with ammonia B)Can be formed by oxidation of primary alcohol

C) Can react with ketone to give acetal D) Can be oxidized to carboxylic acid

**15) The most acidic compound is**



A) B) C) D)

**16) The structure of ethyl isopropyl ether is**



A) B) C) D)

**17) What is the starting material (X) used in the following reaction?**



A) Propene B) 2-propanol C)Propyne D) 1-propanol



**18) The product of the following reaction is**



A) B) C) D)

**19) Methyl vinyl ketone is the common name of**

A) 2-Buten-3-one B) 1-Buten-2-one

C) 1-Buten-3-one D)3-Buten-2-one

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**20) What is the product formed in the following reaction?**



A) B) C) D)

**21) Nucleophilic addition of ammonia to aldehydes and ketones results in the formation of**

A)Imine B) Oxime C) Hydrazine D) Hydrazone



**22) The correct IUPAC name of the following structure is**

A) 4,6-Dimethyl-2-heptenalB)5-Isopropyl-4-methyl-2-pentenal

C) 2,4-Dimethyl-5-heptanal D) 2,4-Dimethyl-5-heptenal

**23) Which one of the following reactions gives propyl ethyl ether?**



A) B)



C) D)

**24) Two molecules (X, Y) have the same chemical formula C2H6O but the boiling point of X is higher than Y, So the compound Y is**

A) Ethene B) Methoxy methane C) Ethanal D) Ethanol

**25) Which of the following compounds is a cyanohydrin?**



A) B) C) D)

**26)The carbonyl-O-atom in aldehydes and ketones can be attacked by**

A) O-atom of water B) Electrophile

C) Nucleophile D) Anion



**27) The following reaction** **yields**

A)3-Methyl-4-hexanol B)4-Ethyl-3-hexanol

C)4-Methoxy-3-hexanol D)4-Methyl-3-hexanol

**28)Which functional group is not present in the following structure?**

A) Hemiketal B) Hemiacetal

C) Trichloromethyl group D) Tertiary alcohol

**29) What reagent is needed to accomplish the following transformation?**



A) Na /heat / H3O+ B)KMnO4 / H3O+

C) NaOH /heat / H3O+ D) Na2Cr2O7/heat / H3O+

**30) Which of the following compounds can not be classified as a secondary halide?**

A) 1-Chloro-1-isopropylcyclopentane B) 2-Bromobutane

C) Cyclohexyl iodide D)Isopropyl bromide