|  |
| --- |
| **NOTE: PLEASE DO NOT WRITE IN THIS BOX!**  ………………………………………………………………………. ……….... …………  *name technical № entry №*  Examining Committee:   1. ……………………………………………………………… 2. ………………………………………………………………   Final mark: ………………………………………………………… |

**Entry test in …………………………………**

**Date .…………………………………………**

**ENTRY TEST CHEMISTRY**

**2019/2020 Academic year**

**AT MEDICAL FACULTY, TRAKIA UNIVERSITY, STARA ZAGORA**

**Mark the correct answer:**

**1. Which element on the periodic table has physical properties most similar to the physical properties of chlorine?**

1. Sodium
2. Oxygen
3. Carbon
4. Florine

**2. Which of the following is true regarding the concentration of products, for a chemical reaction that is already at equilibrium, assuming no disruptions to the equilibrium?**

1. The concentrations of products will not change because there are no more reactants.
2. The concentrations of products will not change because the limiting reagent is gone.
3. The concentrations of products will not change because the forward and reverse rates are equal.
4. The concentrations of products will change continually because of reversibility.
5. **Hydrogen bonding would be seen in a sample of which of the following substances**
6. CH4
7. H2
8. H2O
9. None of the above
10. **Select the ionic compound**
11. CO2
12. P2O5
13. N2O3
14. MgO
15. **What is the chemical character of K2O?**
16. Acidic
17. Basic
18. Amphoteric
19. Metallic
20. **Which of the series below contains only acids?**
21. NaOH, Ca(OH)2, LiOH
22. NaOH, K, CaO
23. NaOH, SO2, S
24. HCl, H2CO3, H2SO4
25. **Which of the series below contains only bases**
26. NaOH, KOH, LiOH
27. NaOH, K, Ca
28. NaOH, KOH, S
29. KOH, LiOH, H2SO4
30. **What are the products of reaction Na + HCl →?**
31. Salt and hydrogen
32. Hydride and base
33. Basic and acidic oxides
34. Acid and base
35. **What are the products of reaction Zn + CuSO4?**
36. Zinc sulfate and copper
37. Zinc oxide and copper oxide
38. Zinc oxide, copper oxide and sulfur dioxide
39. Zinc oxide, copper oxide and oxygen
40. **What is the product of reaction K + Cl2?**
41. Base
42. Salt
43. Covalent compound
44. Acid
45. **Which statement is correct?**
46. Oxidation is loss of electrons and reduction is gain of electrons
47. Oxidation is gain of electrons and reduction is loss of electrons
48. Oxidation is loss of protons and reduction is gain of electrons
49. Oxidation is loss of electrons and reduction is gain of protons
50. **Which statement is correct?**
51. The oxidizing agent is normally in one of its higher possible oxidation states because it will gain electrons and be reduced
52. The oxidizing agent is normally in one of its higher possible oxidation states because it will losses electrons and be reduced
53. The oxidizing agent is normally in one of its lower possible oxidation states because it will losses electrons and be reduced
54. The oxidizing agent is normally in one of its lower possible oxidation states because it will losses electrons and be oxidized
55. **Oxidation of aldehydes with Tollens' reagent**



1. **Select the name of the given compound**

CH3

|

CH3 ̶ CH2 ̶ CH ̶ C ̶ Cl

| |

Br CH3

1. 1-bromo-2-chloroisobutane
2. 3-bromo-4-chloro-4,4-dimethylbutane
3. 2-bromo-1-chloro-1,1-dimethylbutane
4. 3-bromo-2-chloro-2-methylpentane
5. **The correct systematic name of the hydrocarbon with the condensed structural formula is:**

CH3 CH3

| |

CH3 ̶ C ̶ CH2 ̶ CH

| |

CH3 CH3

1. 1,1,3,3-tetramethylbutane
2. 2,2,4-trimethylpentane
3. 2,2,4,4-tetramethylbutane
4. Isooctane
5. **The substance with formula C6H12 is called**
6. Hexane
7. Hexene
8. Hexol
9. Hexenoic acid
10. **Compounds with the – OH group attached to a saturated alkane – like carbon are known as**
11. Alkohols
12. Phenols
13. Alkyl halides
14. Hydroxyls
15. **Express the esterification reaction:**

****

1. **Ethanal is prepared by oxidation of**
2. Ethanol
3. Acetaldehyde
4. Propan-1-ol
5. Propan-2-ol
6. **The systematic name for acetone is**
7. Propanone
8. Propanal
9. Propanoic acid
10. Ethandiol
11. **Write the structures of the following compounds:**
    1. Formaldehyde
    2. Acetone
    3. Acetic acid
12. **What is the major product of the following reaction?**

|  |
| --- |
| https://chemistry.boisestate.edu/richardbanks/organic/mc/vol15/v15_omc2.gif |
| https://chemistry.boisestate.edu/richardbanks/organic/mc/vol15/v15_omc2a.gif |

**23. Which of the following reaction sequences would be the best synthesis of 2-pentanone. Continue all reactions**

|  |
| --- |
| https://chemistry.boisestate.edu/richardbanks/organic/mc/vol13/v13_omc1.gif |
| https://chemistry.boisestate.edu/richardbanks/organic/mc/vol13/v13_omc1a.gif |
|  |

**24. The peptide bond is formed by reaction between:**

1. Two carboxylic groups
2. Hydroxylic group and carboxylic group
3. Amino group and carboxylic group
4. No answer is correct
5. **What type of covalent bonds link the amino acids in a protein?**
6. Peptide bonds
7. Hydrogen bonds
8. Glycosidic bonds
9. Ester bonds

**26. Which of the following is a methylene group?**

1. A CH4 group
2. A CH3 group
3. A CH2 group
4. A CH group
5. **Give the correct common name of the standard amino acid whose structural formula is:**

CH3

|

NH2 ̶ CH ̶ COOH

1. Glycine
2. Alanine
3. Leucine
4. Serine
5. **Carbohydrates may contain the functional groups:**
6. Of an aldehyde
7. Of a ketone
8. Hydroxyl groups
9. All of the above
10. **Which of the following substance is a hexose?**
11. Fructose
12. Arabinose
13. Ribose
14. None of the above
15. **Which two mono saccharides will be formed by hydrolytic cleavage of sucrose?**
16. Glucose and fructose
17. Two molecules of glucose
18. Glucose and galactose
19. Two molecules of fructose