|  |
| --- |
| **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**

**Variant 2**

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

**Mark the correct answer:**

**1. In the chemical reaction between hydrochloric acid (HCl) and calcium carbonate (CaCO3), which of the following elements cannot be part of the products?**

1. Carbon
2. Nitrogen
3. Chlorine
4. Hydrogen
5. **The electrons in a nonpolar covalent bond are:**
6. Gained
7. Lost
8. Shared equally
9. Shared unequally
10. **How many ϭ and π bonds are there in the H ̶ C ≡ C ̶ H**
11. 3 ϭ and 2 π
12. 3 ϭ and 4 π
13. 4 ϭ and 3 π
14. 2 ϭ and 3 π
15. **In a redox reaction, there must be:**
16. An oxidizing agent and no reducing agent
17. A reducing agent and no oxidizing agent
18. A reducing agent and an oxidizing agent
19. No reducing or oxidizing agent
20. **Select the substance with intermolecular hydrogen bonds:**
21. CH4
22. H2
23. NaH
24. H2O
25. **What is the chemical character of SO3?**
26. Acidic
27. Basic
28. Amphoteric
29. Metallic
30. **What is the chemical character of H2CO3?**
31. Amphoteric
32. Basic
33. Acidic
34. Metallic
35. **What is the formula of the compound whose name is Fe (III) carbonate?**
36. Fe2CO3
37. FeCO3
38. Fe3(CO3)2
39. Fe2(CO3)3
40. **Which of the following molecules NaOH reacts with:**
41. H2O
42. CO2
43. CaO
44. Mg(OH)2
45. **What is the formula of the compound which name is aluminum sulfate?**
46. Al2(SO4)3
47. AlSO4
48. Al2(SO3)3
49. FePO4
50. **Which statement is correct?**
51. Oxidation is loss of electrons and reduction is gain of electrons
52. Oxidation is gain of electrons and reduction is loss of electrons
53. Oxidation is loss of protons and reduction is gain of electrons
54. Oxidation is loss of electrons and reduction is gain of protons
55. **What does a catalyst do?**
56. Speeds up or slow down a reaction, but is not consumed by the reaction
57. Slows down a reaction and is not used up in the reaction
58. Speeds up or slow down a reaction and is used up in the reaction
59. Slows down a reaction and is used up in the reaction
60. **Which of the following is true for a chemical reaction at equilibrium?**
61. only the forward reaction stops
62. only the reverse reaction stops
63. both the forward and reverse reactions stop
64. the rate constants for the forward and reverse reactions are equal
65. the rates of the forward and reverse reactions are equal
66. **Endothermic reaction is**
67. One that releases energy
68. One that absorbs energy
69. Reaction of oxidation
70. The phase change liquid-solid
71. **Select the correct 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. **Select the correct name for the following compound C6H5OH:**
6. Styrene
7. Toluene
8. Xylene
9. Phenol
10. **Select one strong acid among the following:**
11. CH3COOH
12. H2CO3
13. NH4OH
14. None of the above
15. **The general formula of an alkane is**
16. C2nH2n+2
17. CnH2n
18. CnH2n+2
19. CnH2n- 2
20. **Express the esterification reaction:**

****

1. **Ethanаl is prepared by oxidation of**
2. Ethanol
3. Acetaldehyde
4. Propan-1-ol
5. Propan-2-ol
6. **Write the structures of the following compounds:**
7. Formaldehyde
8. Acetone
9. Acetic acid

**22. Which of the following is an intermediate in the mechanism of the acid catalyzed formation of an ester?**

|  |
| --- |
| https://chemistry.boisestate.edu/richardbanks/organic/mc/vol15/v15_omc6.gif |
| https://chemistry.boisestate.edu/richardbanks/organic/mc/vol15/v15_omc6a.gif |

1. **pH is a concentration unit used to measure the concentration of:**
2. Anions in a solution
3. Hydrogen ions in a solution
4. Cations in a solution
5. Hydroxyl ions in a solution

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

1. Two carboxylic groups
2. Hydroxyl group and carboxyl 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
10. **Which of the following is a methylene group**
11. A CH4 group
12. A CH3 group
13. A CH2 group
14. A CH group
15. **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 pentose?**
11. Fructose
12. Glucose
13. Sucrose
14. None of the above
15. **The disaccharide sucrose is composed of the mono saccharides:**
16. Glucose and glucose
17. Fructose and fructose
18. Glucose and fructose
19. None of the above