

- 6) What mass of oxygen is necessary for complete combustion of 1.8 kg of carbon to CO_2 ?
[$A_r(\text{C}) = 12$], [$A_r(\text{O}) = 16$]
a) 4.8 kg b) 3 600 g c) 1 800 g d) 10.5 g
e) no answer is correct
- 7) Which of the following is the compound whose molecules are weakly bonded by forming hydrogen bonds?
a) CH_4 b) H_2S c) $\text{CH}_3\text{CH}_2\text{OH}$ d) $\text{CH}_3\text{-O-CH}_3$ e) no answer is correct
- 8) Choose one molecule with the permanent dipole among the following:
a) NH_3 b) CCl_4 c) CH_4 d) CO_2
e) no answer is correct
- 9) Select the correct answer: For neutralization of 20 mL of 0.2 mol/L HNO_3 solution is a needed:
a) 10 mL of a 0.2 mol/L NaOH solution d) 10 mL of a 0.25 mol/L NaOH solution
b) 10 mL of a 0.4 mol/L NaOH solution e) no answer is correct
c) 10 mL of a 0.8 mol/L NaOH solution
- 10) The concentration of H_3O^+ in the aqueous solution at $T=25^\circ\text{C}$ is 0.001. What is the concentration of OH^- ions in this solution ?
a) 0,001 b) 0,0001 c) 0,000001 d) 1 e) no answer is correct
- 11) The solution of calcium (II) chloride has concentration $0,09 \text{ mol}\cdot\text{dm}^{-3}$. How many mmols of chloride anions is contained in 100 mL of these solution ?
a) 900 mmol b) 0.9 mmol c) 90 mmol d) 18 mmol
e) no answer is correct
- 12) Select one strong acid among the following:
a) HNO_2 b) CH_3COOH c) H_2CO_3 d) NH_3 e) no answer is correct
- 13) When dissolved in water, all of the following compounds are strong electrolytes EXCEPT
a) Na_2SO_4 b) HBr c) HClO d) NaOH e) no answer is correct
- 14) What will be the pH of the NaOH solution with the concentration 1.5 mmol/l:
a) 11.2 b) 0.17 c) 2.8 d) 10.2 e) no answer is correct

15) Select one acid-base conjugated pair according to Bronstedt theory among the following:

- a) KOH/KCl b) $\text{NaNO}_3/\text{HNO}_3$ c) $\text{NO}_3^-/\text{NO}_2^-$ d) $\text{H}_3\text{O}^+/\text{H}_2\text{O}$
e) no answer is correct

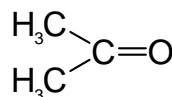
16) Which of the following products will be formed by dehydrogenation of ethanol:

- a) ethanal b) acetone c) formaldehyde d) ethylene oxide e) no answer is correct

17) Select one compound that does not contain primary alcoholic group:

- a) glycerol b) glucose c) cyclopentanol d) ethandiol
e) no answer is correct, all compounds contain the primary alcoholic group

18) Select the type of the following compound:

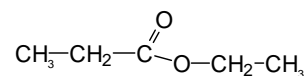


- a) aldehyde b) ester c) anhydride d) ether
e) no answer is correct

19) Which of the following molecular formulas is the correct formula of oxalic acid ?

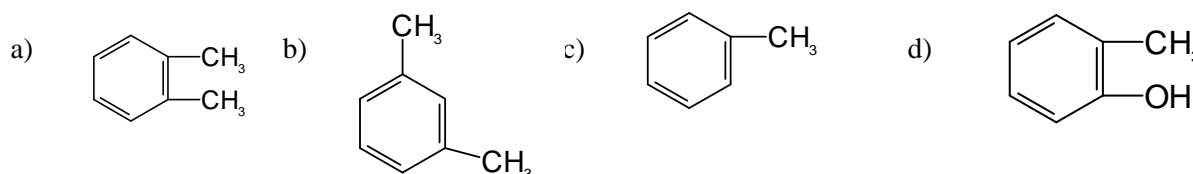
- a) $\text{H}_2\text{C}_2\text{O}_4$ b) H_2CO_2 c) $\text{H}_2\text{C}_2\text{O}_2$ d) $\text{H}_4\text{C}_2\text{O}_4$
e) no answer is correct

20) What will be the correct name of the given compound?



- a) ethyl-propyl ketone d) ethyl propanoic acid
b) propanoyl ethanolate c) ethyl propanoate
e) no answer is correct

21) Select the correct structure of toluene among the following:



- e) no answer is correct

22) Which of the following formulas expresses the composition of pyridine:

- a) C_5H_5N b) $C_4H_5N_2$ c) C_6H_4N d) C_5H_6N e) no answer is correct

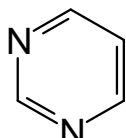
23) The compound with the formula $CH_3CH_2NHCH_3$ is:

- a) primary amine b) secondary amine c) tertiary amine d) amide
e) no answer is correct

24) Which of the following amino acids contains sulfur in its structure :

- a) alanine b) methionine c) tyrosine d) histidine e) no answer is correct

25) What is the common name of the following heterocycle:

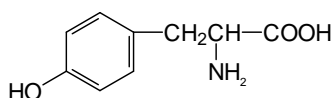


- a) purine b) pyridine c) imidazole d) pyrimidine
e) no answer is correct

26) Which of the following types of bonds is characteristic for the primary structure of proteins?

- a) peptide bond b) glycosidic bond c) ester bond d) ether bond e) no answer is correct

27) Give the correct common name of the standard amino acid whose condensed structural formula is



- a) tyrosine c) phenylalanine
b) proline d) threonine e) no answer is correct

28) Nucleotides are composed of:

- a) base and phosphoric acid d) pentose and phosphoric acid
b) base and pentose e) no answer is correct
c) base, pentose and phosphoric acid

29) How many carbons are contained in palmitic acid:

- a) 16 b) 17 c) 18 d) 20 e) no answer is correct

30) Sucrose is composed of:

- a) two molecules of glucose b) glucose and fructose c) two fructoses d) glucose and galactose
e) no answer is correct