

**COMENIUS UNIVERSITY
JESSENIUS FACULTY OF MEDICINE
IN MARTIN**

ENTRANCE TEST FROM CHEMISTRY

1. In the isotope ${}^{27}_{13}\text{Al}$ the number of protons, neutrons and electrons is
 - a) 27p, 13n, 27e
 - b) 14p, 13n, 14e
 - c) 27p, 27n, 13e
 - d) 13p, 14n, 13e
2. Which electron configuration for phosphorus (atomic number $Z=15$) is correct?
 - a) $1s^2 2s^2 2p^3 3s^2 3p^3 3d^3$
 - b) $1s^2 2s^2 2p^6 2d^5$
 - c) $1s^2 2s^2 2p^6 3s^2 3p^3$
 - d) none of the above
3. What is the name of the element represented by the atomic symbol Mn?
 - a) molybdenum
 - b) manganese
 - c) magnesium
 - d) mercury
4. Isotopes are atoms with the same
 - a) number of protons
 - b) number of neutrons
 - c) mass numbers
 - d) number of nucleons
5. What is the formula of zinc sulfate?
 - a) ZnS
 - b) ZnSO₄
 - c) ZnSO₃
 - d) Zn₂S
6. Which of the following elements is not an alkaline earth metal?
 - a) magnesium
 - b) calcium
 - c) cesium
 - d) barium
7. In the periodic table, electronegativity increases
 - a) from top to bottom
 - b) from left to right
 - c) both a) and b) are correct
 - d) none of the above is correct
8. Which of the following statements about sodium is not true?
 - a) its atomic symbol is Na
 - b) it is a nonmetal
 - c) its typical oxidizing number in compounds is +1
 - d) all of the above statements are true.

9. Find the molecular weight of ammonium hydroxide. Atomic weights are as follows:
nitrogen 14, hydrogen 1, oxygen 16.
- a) 35
 - b) 34
 - c) 53
 - d) none of the above
10. Which of the following ions does not exist?
- a) Fe^{3+}
 - b) Cu^+
 - c) Mg^{2+}
 - d) Ca^+
11. Which of the following is nitric acid?
- a) HNO_2
 - b) HNO_3
 - c) H_2NO_2
 - d) H_2NO_3
12. A measure of the ability of an atom to draw binding electrons to itself is called
- a) electrolysis
 - b) electronegativity
 - c) ionization energy
 - d) none of the previous answers is correct
13. Which of the following compounds is polar?
- a) butane
 - b) N_2
 - c) H_2O
 - d) benzene
14. If molecular weight of sodium hydroxide is 40, how many moles of NaOH are contained in 20 g NaOH?
- a) 20.0 mol
 - b) 8.0 mol
 - c) 2.0 mol
 - d) 0.5 mol
15. Given the balanced equation $\text{Cl}_2 + 2\text{KI} \rightarrow 2\text{KCl} + \text{I}_2$
How many moles of KCl are formed when 3 moles of Cl_2 react?
- a) 2
 - b) 4
 - c) 6
 - d) 8

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ENTRANCE TEST FROM BIOLOGY

1. Fats and oils contain two basic units. They are:
 - a) glycerol and sucrose
 - b) glycerol and fatty acids
 - c) sucrose and fatty acids
 - d) glycerol and amino acids

2. The haemoglobin molecule, which carries oxygen to the cells in the body:
 - a) is an enzyme
 - b) is a hormone
 - c) is a structural protein
 - d) is a polysaccharide

3. RNA contains uracil in place of thymine in DNA. Uracil bonds with:
 - a) cytosine
 - b) adenine
 - c) guanine
 - d) thymine on a DNA molecule

4. In the DNA molecule:
 - a) adenine bonds to guanine
 - b) cytosine bonds to thymine
 - c) adenine bonds to thymine
 - d) all of the above

5. The tRNA molecule:
 - a) carries the genetic information encoded on a gene to the cytoplasm
 - b) binds with proteins to form ribosomes in the cell cytoplasm
 - c) carries specific amino acids
 - d) is the only RNA active in translation

6. The most common polysaccharide storage material found in plants is:
 - a) glycogen
 - b) glucose
 - c) starch
 - d) fructose

7. The main storage product of animals is:
- a) glycogen
 - b) chitin
 - c) cellulose
 - d) glycerol
8. The most obvious difference between prokaryotes and eukaryotes is:
- a) the prokaryote's cell wall
 - b) the presence of proteins in the cytoplasm of eukaryotes
 - c) the eukaryote's cytoskeleton
 - d) the absence of a nucleus in prokaryotes
9. Tissues are composed of:
- a) groups of related organs
 - b) different organ systems
 - c) random aggregations of cells
 - d) groups of cells performing similar functions
10. Smooth endoplasmic reticulum (SER):
- a) lacks ribosomes
 - b) is active in fat and steroid synthesis
 - c) is involved in the oxidation of toxins
 - d) all of the above
11. Ribosomal RNA is synthesised in:
- a) cytoplasm
 - b) nucleus
 - c) mitochondria
 - d) smooth endoplasmic reticulum
12. Transformation of energy and storage of energy in the cell are the main function of:
- a) ribosomes
 - b) microbodies
 - c) contractile vacuoles
 - d) mitochondria

13. Each individual cell is supported by a network of filaments and tubules known as:
- a) cytoplasm
 - b) cytoskeleton
 - c) vacuole
 - d) endoplasmic reticulum
14. Leucoplasts are plastids that:
- a) contain carotenoid
 - b) are involved in photosynthesis
 - c) serve as a storage site for starch, proteins and oils
 - d) are responsible for plant pigmentation
15. Proteins synthesised on endoplasmic reticulum are modified:
- a) in vacuoles
 - b) in the cell membrane
 - c) in the Golgi complex
 - d) in lysosomes
16. Hydrolytic enzymes in the cell digest food in the:
- a) lysosome
 - b) Golgi complex
 - c) mitochondria
 - d) chloroplast
17. During G_1 , S, and G_2 phases, a cell is said to be in:
- a) the process of mitosis
 - b) the process of meiosis
 - c) interphase
 - d) cytokinesis
18. In a typical vertebrate the longest phase of cells cycle is:
- a) G_1 phase
 - b) S phase
 - c) G_2 phase
 - d) mitosis

**Answers
Biology:**

	a	b	c	d
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2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Answers
Chemistry:**

	a	b	c	d
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3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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12	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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15	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>