

Approximate
list of questions for admission to the
Faculty for International Students

There are 5 parts in the test.

BIOLOGY

Which of the following is NOT contained in a chloroplast?

- a) Stroma
- b) DNA
- c) Ribosomes
- d) Nucleus
- e) Chlorophyll

What type of carbohydrate is lactose?

- a) Trisaccharide
- b) Disaccharide
- c) Polysaccharide
- d) Monosaccharide

What type of carbohydrate is fructose?

- a) Trisaccharide
- b) Disaccharide
- c) Polysaccharide
- d) Monosaccharide

What type of carbohydrate is glycogen?

- a) Trisaccharide
- b) Disaccharide
- c) Polysaccharide
- d) Monosaccharide

Which of the following describes hydrolysis correctly?

- a) Monomers are linked together by the removal of one or more water molecules.
- b) Long carbohydrates are broken into monomers through the addition of water molecules between the subunits.
- c) Hydrogen atoms are added to the each end of the carbohydrate to protect it from degradation.
- d) Hydrogen atoms are removed from the end of a carbohydrate.

Which of the following is a characteristic of lipids?

- a) They are composed of nitrogenous chains.
- b) They are not soluble in water.
- c) They are either fats or oils.
- d) They are polar molecules.

If a parent cell has 14 chromosomes prior to mitosis, how many chromosomes will the daughter cell have?

- a) 28
- b) 14
- c) 7
- d) Any number between 7 and 28

At the equator during metaphase II of meiosis, there are

- a) Singled chromosomes
- b) Unpaired duplicated chromosomes
- c) Bivalents (tetrads)
- d) 23 chromosomes

How many chromosomes and DNA molecules will be found per cell when cell progresses to anaphase II of meiosis?

- a) $2n2c$
- b) $2n4c$
- c) $n2c$
- d) nc

Which organelle releases oxygen?

- a) Ribosomes
- b) Golgi apparatus
- c) Mitochondria
- d) Chloroplasts

Transcription

- a) produces tRNA only
- b) requires ribosomes
- c) takes place only in eukaryotes

Transcription

- a) produces only mRNA
- b) requires tRNAs
- c) requires ribosomes
- d) produces RNA growing from 5` end to the 3` end
- e) takes place only in eukaryotes

The Golgi apparatus

- a) is found in only animals
- b) is found in prokaryotes
- c) is the complex that condenses and concentrates different substances for further excretion
- d) is a site a rapid ATP production

In the process of meiosis four cells with non-identical chromosomes are produced. This diversification occurs during:

- a) telophase I
- b) prophase I
- c) metaphase II
- d) prophase II

A sample of cells is placed in a salt solution. The cells shrink and the membrane is distorted. ~Relative to the cell, the solution is probably:

- a) Isotonic
- b) Hypotonic
- c) osmotic
- d) Hypertonic

How many types of gametes does an organism with genotype AABbCc produce?

- a) 1;
- b) 2;
- c) 4;
- d) 8.

Organism with genotype AaBb can produce gametes...

- a) A, a, B, b;
- b) Aa, Bb;
- c) AaBb;
- d) AB, Ab, aB, ab.

The classification of mutation according to genotype change is...

- a) generative, somatic;
- b) gene, chromosome, genome;
- c) useful, harmful, neutral;
- d) spontaneous, induced.

Deletion is...

- a) chromosome aberrations;
- b) interchromosome aberrations;
- c) gene mutation;
- d) genome mutation.

Aneuploidy is...

- a) chromosome aberrations;
- b) interchromosome aberrations;
- c) gene mutation;
- d) genome mutation.

Both a man and woman are heterozygous for phenylketonuria (autosomal recessive disease). What are the chances that any child born to them will not have phenylketonuria?

- a) 0 %;
- b) 25%;
- c) 50%;
- d) 75%.

In rabbits, if B - dominant black allele, b - recessive white allele, which of these genotypes could a white rabbit have?

- a) Bb
- b) BB
- c) bb

The sexual reproduction in animals is as follows:

- a) Two parents are needed
- b) Reproductive cells are the result of mitosis
- c) Each gamete has diploid number of chromosomes
- d) One parent is enough

The asexual reproduction is as follows:

- a) It is a type of regeneration
- b) Two parents are needed
- c) Genotype of the offspring combines genetic information of both parents
- d) New organism is developed from zygote

Mendel's third law is

- a) Law of dominance
- b) Law of segregation
- c) Law of independent inheritance
- d) Law of crossing over

CHEMISTRY

What properties are the same for both a single molecule and a substance consisting of these molecules?

- a) colour;
- b) aggregate state;
- c) chemical properties;
- d) density.

In what cases are we talking about the chemical properties of sodium metal?

- a) sodium conducts electricity;
- b) while heated, sodium melts;
- c) sodium dissolves in H_2O , releasing hydrogen and a large amount of energy;
- d) sodium is lighter than water.

For what substance the volume of one mole at normal conditions equals to $22,4 \text{ dm}^3$?

- a) water;
- b) bromine;
- c) calcium fluoride;
- d) hydrogen chloride.

Physical phenomena include:

- a) methane combustion;
- b) condensation of water vapor;
- c) interaction of quicklime with water;
- d) dissolution of iron in muriatic acid

How many nitrogen atoms are found in $33,6 \text{ dm}^3$ (at normal conditions) of NH_3 gas?

- a) $9,03 \cdot 10^{23}$;
- b) $12,06 \cdot 10^{23}$;
- c) $15,05 \cdot 10^{23}$;
- d) $18,06 \cdot 10^{23}$.

The volume of the sample of mixture (at normal conditions), consisting of $6,02 \cdot 10^{22}$ CH_4 molecules and $3,01 \cdot 10^{23}$ NH_3 molecules, equals to:

- a) $11,2 \cdot \text{dm}^3$;
- b) $13,44 \cdot \text{dm}^3$;
- c) $22,4 \cdot \text{dm}^3$;
- d) $33,6 \cdot \text{dm}^3$.

The chemical amount of Me_3O_4 substance in its 58 g sample equals to 0,25 mol. Determine which metal composes the oxide:

- a) Al;
- b) Cr;
- c) Fe;
- d) Mn.

The same portions of gaseous substance are found in four vessels of the same volume but different temperatures. The vessel with what temperature will have the maximum pressure?

- a) 273 K;
- b) 150 °C;
- c) 273 °C;
- d) 300 K.

When mixing solutions containing equal masses of NaOH and H₂SO₄, the medium in the resulting solution will be:

- a) neutral;
- b) acidic;
- c) alkaline.
- d) no reaction will pass
- e)

What is the amount of SO₂ gas (at normal conditions) obtained by the combustion of 16 g of sulfur, if it is known that the practical yield of sulfur (IV) oxide formation equals to 80%?

- a) 7,6 dm³;
- b) 8,96 dm³;
- c) 11,2 dm³;
- d) 14,64 dm³.

The largest number of atomic orbitals is found in:

- a) p-subshell;
- b) s- subshell;
- c) f- subshell;
- d) d- subshell.

Which of the given electronic configurations of atoms or ions are impossible at all?

- a) 1s²2s²2p⁴2d¹;
- b) 1s²2s²2p⁶3s¹3p³3d⁴;
- c) 1s²2s²3s¹3p⁷3d¹⁰;
- d) 1s²2s²2p⁶3s²3p⁶3d⁹.

During chemical reactions, atoms exchange:

- a) electrons;

- b) protons;
- c) electrons and protons;
- d) neutrons.

From the ions listed below, the largest radius has:

- a) K^+ ;
- b) Na^+ ;
- c) Mg^{2+} ;
- d) Li^+ .

The mechanism of chemical bond formation between one atom and a free orbital of another atom is called:

- a) exchange;
- b) ionic;
- c) donor-acceptor;
- d) dipole-dipolar.

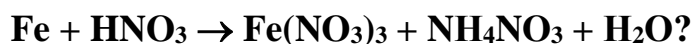
In which compounds oxidation state of sulfur is not equal to "-2"?

- a) FeS_2 ;
- b) FeS ;
- c) $NaHS$;
- d) SCl_4 .

Denote the scheme of heterogeneous reaction:

- a) $4P + 5O_2 \rightarrow$;
- b) $2H_2 + O_2 \rightarrow$;
- c) $2H_2S + SO_2 \rightarrow$;
- d) $2NH_3 + HCl \rightarrow$.

How many moles of NO_3 are spent in salt formation during the oxidation of 4 mol of Fe in the reactions proceeding in accordance with the scheme?



- a) 12;
- b) 13,5;
- c) 27;

d) 30.

How many times does the rate of a direct reaction become higher than the rate of the reverse reaction when the pressure in the system with reaction type: $2\text{NO} + \text{O}_2 \leftrightarrow 2\text{NO}_2$ rises in 2 times:

- a) 2;
- b) 4;
- c) 6;
- d) 8.

Choose the correct statement with respect to crystalline solutions:

- a) are stable homogeneous systems;
- b) are limitedly stable homogeneous systems;
- c) are stable microheterogeneous systems;
- d) are stable homogeneous systems only in the presence of additives of special substances.

How many ions are found in 100 g of 6 % solution of acetic acid, if it is known that the degree of the dissociation of this acid in solution equals to 4 %? (Do not take into account self-dissociation of water).

- a) $0,024 \cdot 10^{23}$;
- b) $0,048 \cdot 10^{23}$;
- c) $0,062 \cdot 10^{23}$;
- d) $0,084 \cdot 10^{23}$.

What metals under normal conditions react with dilute sulfuric acid, but do not react with the concentrated one?

- a) copper;
- b) iron;
- c) magnesium;
- d) calcium.

Oxidation of Ethene by KMnO_4 in aqueous medium produces:

- a) ethanal;
- b) ethanediol-1,2;
- c) ethanoic acid;
- d) ethin.

Hydration reactions are characteristic to:

- a) alkanes;
- b) alcohols;
- c) arens;
- d) alkenes.

Acidified potassium permanganate solution at room temperature or under slight heating discolors the following substances: 1) hexane; 2) benzene; 3) propyne; 4) ethylbenzene; 5) isobutene; 6) polyethylene; 7) butadiene rubber; 8) divinyl:

- a) 1, 2, 3, 5;
- b) 3, 5, 7, 8;
- c) 3, 4, 7, 8;
- d) 2, 4, 5, 6.

ENGLISH LANGUAGE TEST

Choose the sentence with the correct capitalization

He is a student in_____.

- a) high school
- b) High school
- c) High School
- d) high School

Choose the sentence with the correct punctuation.

- a) Although, it was raining on Saturday we decided to go to the park.
- b) Although it was raining on Saturday we decided to go to the park.
- c) Although it was raining, on Saturday, we decided to go to the park.
- d) Although it was raining on Saturday, we decided to go to the park.

Decide which word or group of words belongs in the blank

The wind_____through the trees.

- a) rustles

- b) are rustling
- c) dorustle
- d) rustle

Decide which sentence is written clearly and correctly.

- a) I found an excellent job after I graduated from college.
- b) I find an excellent job after I graduated from college.
- c) I have found an excellent job after I am graduating from college.
- d) I will have found an excellent job after I am graduated from college.

Decide which sentence is written clearly and correctly.

- a) He thought he had the best seat, he was in the front row.
- b) The class was cancelled the students were pleased.
- c) Her car broke down, so she was late for the appointment.
- d) We laughed then we cried.

Choose the answer that best combines these sentences without changing their meaning.

- a) Ed went at the mall to the shoe store.
- b) Ed's shoe store is at the mall.
- c) Ed went to the shoe store at the mall.
- d) To the shoe store at the mall went Ed.

Choose the answer that best combines these sentences without changing their meaning.

- a) The dog was hungry and wanted more.
- b) He always enjoyed music, so he became a music teacher.
- c) Hiding under the desk, the instructor found his pen.
- d) My employer offered me a raise which pleased me.

Complete the sentences.

Cell biologists in studying cells today.

- a) sophisticated, a variety of useful chemical techniques
- b) a variety of sophisticated chemical techniques use
- c) use a variety of sophisticated chemical techniques
- d) use of a variety of sophisticated chemical techniques

Complete the sentences.

Changes in body organs during the first year of life affect a baby's readiness

- a) accepting
- b) who accept
- c) accepted
- d) to accept

Complete the sentences.

Red meat is an excellent source protein.

- a) of
- b) by
- c) about
- d) on

Complete the sentences.

Research now indicates that lead may have more influence on blood pressure levels than..... .

- a) dietary salts
- b) when people eat salt
- c) to eat salt
- d) diets have salt

Complete the sentences.

Fat for the energy from food eaten in excess of need.

- a) is the body's chief storage form
- b) the body's chief storage form it is
- c) is it the body's chief storage form
- d) the body's is chief storage form

Complete the sentences.

.... his illness, John continued to play rugby.

- a) Due to
- b) Despite
- c) Although
- d) Even though

Complete the sentences.

Of all the saturated vegetable oils, coconut oil,, has the greatest concentration of polysaturated oils.

- a) that derived it from the meat of the coconut
- b) it is derived from the meat of the coconut
- c) derived from the meat of the coconut
- d) is derived it from the meat of the coconut

Choose the correct word.

When people have AIDS their systems are badly weakened. They suffer from infections which do not affect normally healthy people.

- a) transmission
- b) immune
- c) vaccine
- d) capable

Choose the correct word.

Some diseases are directly caused by a of certain vitamin in a person's diet.

- a) association
- b) deficiency
- c) benefit
- d) emphasis

Choose the correct word.

This operation is extremely difficult. Only a few doctors in the hospital can ... it.

- a) recover
- b) associate
- c) perform
- d) finance

Choose the correct word.

In 1987, the World Health Organization announced the smallpox had been

- a) inherited
- b) eliminated
- c) performed
- d) advanced

Choose the correct word.

After the accident, the driver was ... for eight hours. However, the doctors were not worried; they said that he did not have any serious brain damage.

- a) regardless
- b) unconscious
- c) reluctant
- d) fatal

Choose the correct word.

The doctor gave him some medicine to his pain.

- a) increase
- b) reduce
- c) augment
- d) revive

Choose the correct word.

Cholera was from this island.

- a) implanted
- b) propagated
- c) eradicated
- d) engended

Choose the correct word.

She illness so as not to go to school.

