

PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE  
LUMUMBA

RUDN UNIVERSITY

Tests for RUDN University Open Olympiad for Foreign Citizens

BIOLOGY (B)

Variant 1

In the following test select one or more correct answers.

Transfer the response numbers to the response form:

Question	Answer	Question	Answer
1		16	
2		17	
3		18	
4		19	
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

**Q1:** Double membrane-bound organelles include:

- A – Golgi apparatus
- B – lysosome
- C – ribosome
- D – mitochondrion
- E – endoplasmic reticulum

**Q2:** The nucleotide complementary to adenine is:

- A – cytosine
- B – uracil
- C – guanine
- D – adenine

**Q3:** Sister chromatids diverge to the cell poles in:

- A – prophase of mitosis
- B – metaphase I of meiosis

C – telophase of mitosis

D – anaphase I of meiosis

E – anaphase of mitosis

**Q4:** Antibodies are:

- A – cells
- B – proteins
- C – fats
- D – carbohydrates

**Q5:** The intermediate host of the liver fluke (*Fasciola hepatica*) is:

- A – cow
- B – pig
- C – mollusk
- D – man
- E – fish

**Q6:** Tapeworms dwell in the body of the definitive (final) host in:

- A – liver
- B – small intestine
- C – blood
- D – central nervous system

**Q7:** Cutaneous and pulmonary respiration is typical for representatives of the following class:

- A – birds
- B – reptiles
- C – mammals
- D – amphibians
- E – fish

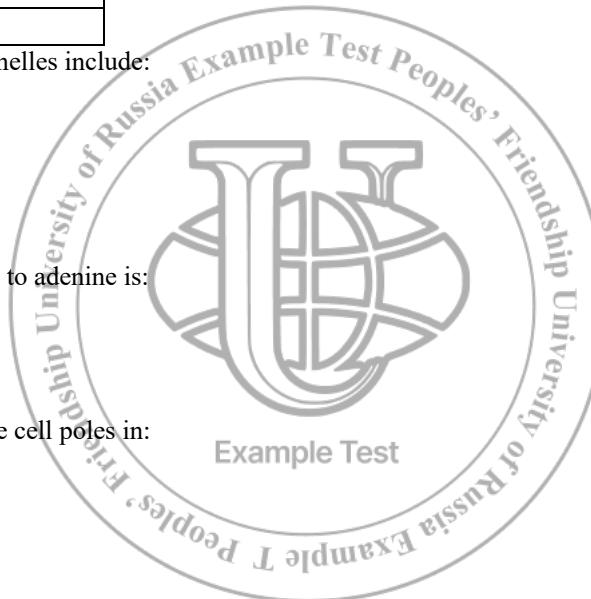
**Q8:** Spherical-shaped bacteria include:

- A - cocci
- B - bacilli
- C - virions
- D - spirilla

**Q9:** Conductive plant tissues include:

- A – xylem
- B – cambium
- C – parenchyma
- D – epidermis

**Q10:** Maintaining the average value of a trait in a population is facilitated by:



- A - Driving selection
- B - Stabilizing selection
- C - Disruptive selection
- D - Mutation process

**Q11:** Plants in biocenoses are:

- A - decomposers
- B - first order consumers
- C - second order consumers
- D - producers

**Q12:** The secondary structure of DNA was discovered by the following scientists:

- A - J. Watson
- B - H. Krebs
- C - G. Mendel
- D - F. Crick
- E - Th. Morgan

**Q13:** The stages of gene expression include the synthesis reactions of:

- A - ATP
- B - RNA
- C - glycogen
- D - polypeptide
- E - DNA

**Q14:** What is the probability of the formation of gametes with both dominant genes in a diheterozygous organism if it is known that nonallelic genes are completely linked?

- A - 100 %
- B - 0 %
- C - 1 %
- D - 10 %
- E - 50 %

**Q15:** When examining feces for parasites, the following pathogen can be detected in the material studied:

- A - elephantiasis
- B - malaria
- C - amoebiasis
- D - sleeping sickness
- E - ascariasis

**Q16:** The properties of the genetic code include the following:

- A – It is universal.
- B – It changes in the process of individual development.
- C- It is individual.
- D- It is triplet.
- E – It is formed by combinations of two nucleotides.

**Q17:** Match the processes occurring in a eukaryotic cell and their characteristic features:

Processes:

- A. Replication
- B. Transcription
- C. Translation

Characteristic features:

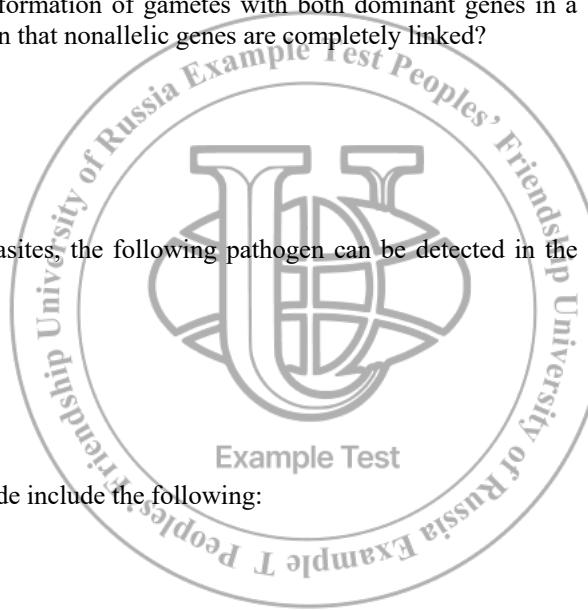
- 1. It occurs in the cytoplasm.
- 2. The material for synthesis is ribonucleotides.
- 3. The material for synthesis is deoxyribonucleotides.
- 4. The material for synthesis is amino acids.
- 5. It is carried out according to a semi-conservative principle.
- 6. DNA polymerase enzyme is involved.
- 7. It starts at the promoter.

**Q18:** Determine the correct sequence of gene expression in a eukaryotic cell.

- A - mRNA processing.
- B - Attachment of two tRNA molecules with amino acids to mRNA.
- C - Transcription.
- D - Peptide bond formation.
- E - Movement of mRNA from the nucleus to the cytoplasm.

- 1 – CAEBD
- 2 – ACDEB
- 3 – EBADC
- 4 – DAECB
- 5 – CBDAE
- 6 – ADEBC

**Q19:** The genes which control hemophilia and color blindness (recessive traits) are linked to the X chromosome. The frequency of crossing over between the genes is 10%. Which statements are true for a family in which the wife is diheterozygous (she inherited one of the recessive genes from her mother and the second from her father), and the husband is healthy?



- A – The wife is healthy.
- B – The probability of having a girl with hemophilia is 5%.
- C – Only boys can suffer from hemophilia in this family.
- D – The probability of having children with color blindness is 25%.
- E – The probability of having a boy with hemophilia and color blindness is 2.5%.
- F – Healthy children will be born with a 90% probability.
- G – All children will have pathology

