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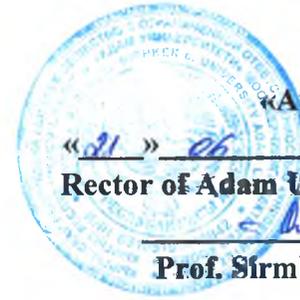
«21» 2021г.

Rector of Adam University

Prof. Sirmbard S.R.

**Program of
Entrance examinatio (testing)
for applicants with foreign citizenship
in Biology
for the 2021-2022 academic year**

2021 year



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«21» 26 2021г.

Rector of Adam University

Prof. Sirmbard S.R.

Tests for entrance exams in Biology

Variant № 1

1. **Who was the founder of cell theory?**
 - a. Charles Darwin;
 - b. Matthias Schleiden, Theodor Schwann
 - c. E. Bear;
 - d. Aristotle;

2. **the ecological study of a particular species is...**
 - a. autecology
 - b. demecology
 - c. synecology
 - d. polyecology

3. **Which cell feature is responsible for making proteins?**
 - a. lysosomes
 - b. ribosomes
 - c. mitochondria
 - d. Golgi bodies

4. **What is the name of the jelly-like substance that is inside the cell?**
 - a. cytoplasm
 - b. ectoplasm
 - c. cytokinesis
 - d. Golgi bodies

5. **Which cell feature packages and moves things (enzymes) around the cell?**
 - a. endoplasmic reticulum
 - b. chloroplasts
 - c. golgi bodies
 - d. nucleolus

6. **The plant cell structure (organoid) where photosynthesis takes place is called...**
 - a. chloroplast
 - b. chlorophyll
 - c. vacuole
 - d. nucleolus

7. **Which organelle would you expect to find in a plant cell but not an animal cell?**

- a. Mitochondria
- b. Ribosome
- c. Chloroplast
- d. Nucleus

8. The fundamental structure of the cell membrane is determined almost exclusively by:

- a. phospholipid molecules
- b. transport proteins
- c. cholesterol molecules
- d. carbohydrate molecules

9. Photosynthesis occurs at the cell level. Which organelle is necessary for photosynthesis?

- a. Golgi apparatus
- b. mitochondrion
- c. chloroplasts
- d. rough endoplasmic reticulum

10. Which is used as a matrix to make proteins in the cell?

- a. Water
- b. DNA
- c. RNA
- d. Lipids

11. Binary nomenclature of all living beings suggested:

- a. Charles Darwin
- b. Anthony van Leeuwenhoek
- c. Karl Ernst von Baer
- d. Karl Linnaeus

12. What does heterozygous mean?

- a. One dominant and one recessive allele
- b. Two dominant alleles
- c. Two recessive alleles
- d. Have no correct answer

13. Which genotype is heterozygous?

- a. BB
- b. Bb
- c. bb
- d. AB

14. What kind of ratio specific for monohybrid inheritance?

- a. 9:3:3:1 ratio
- b. 9:3:4 ratio
- c. 3:1 ratio

d. 1:2:1 ratio

15. It is a specialized type of cell division that reduces the chromosome number by half, creating four haploid cells, each genetically distinct from the parent cell that gave rise to them. It is...

- a. Mitosis
- b. Meiosis
- c. Amitosis
- d. Myiasis

16. Specify the correct phase sequence in cell cycle.

- a. Prophase → Telophase → Metaphase → Interphase → Anaphase
- b. Prophase → Metaphase → Interphase → Anaphase → Telophase
- c. Interphase → Prophase → Anaphase → Telophase → Metaphase
- d. Interphase → Prophase → Metaphase → Anaphase → Telophase

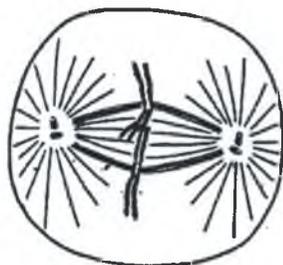
17. What are the main environmental factors affecting living organisms:

- a. Anthropogenic, anthropomorphic, anthropological
- b. Biotic, abiotic, biotoxic
- c. Biotic, abiotic, anthropogenic
- d. Biotic, climatological, physicochemical

18. One species benefits while the other dies. It is...

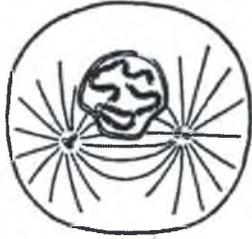
- a. Neutralism
- b. Predation
- c. Mutualism
- d. Commensalism

19. What kind of phase of Mitosis present in the diagram ?

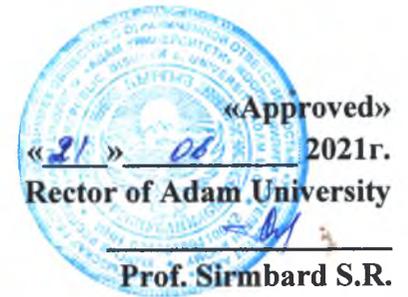


- a. Prophase
- b. Anaphase
- c. Telophase
- d. Metaphase

20. What kind of phase of Mitosis present in the diagram ?



- a. Prophase
- b. Anaphase
- c. Telophase
- d. Metaphase



Tests for entrance exams in Biology

Variant № 2

1. **Ecology of populations is...**
 - a. autecology
 - b. demecology
 - c. synecology
 - d. polyecology

2. **What is basic thesis of cell theory**
 - a. All biological manifestations of living systems are associated with replication, transcription and translation
 - b. All living organisms have a cellular structure
 - c. The presence of all the properties of a life gives us the opportunity to judge about object condition - it is alive or not
 - d. Microorganisms it is just smallest alive systems

3. **What cell feature is responsible for powering the cell?**
 - a. endoplasmic reticulum
 - b. golgi bodies
 - c. mitochondria
 - d. ribosomes

4. **Where in the cell does chromatin (DNA) found?**
 - a. ribosomes
 - b. nucleus
 - c. nucleolus
 - d. centrioles

5. **What cell feature is responsible for storing water?**
 - a. mitochondria
 - b. lysosome
 - c. vacuole
 - d. nucleolus

6. **What is the main function of the Cell Wall?**
 - a. To protect and provide support for the cell
 - b. Builds proteins
 - c. Convert solar energy to chemical energy
 - d. Storage and protect only genetic information

7. **What property of phospholipid molecules allows to form membrane complexes**
- hydrophilicity of molecules
 - hydrophobicity of molecules
 - hydrophilicity and hydrophobicity of molecules
 - enzymatic activity of molecules
8. **A plasma membrane is considered semi-permeable if it allows**
- all materials to pass through
 - material to go in, but not out
 - only some materials pass through (to cell & from cell)
 - materials to go out, but not in
9. **What is the main difference between a prokaryotic cell and a eukaryotic cell?**
- Only prokaryotic cells have vacuoles
 - Eukaryotic cells are smaller than prokaryotic cells
 - Prokaryotic cells have many organelles, each with their own specialized functions
 - Only eukaryotic cells have its genetic material surrounded by a membrane
10. **What is the difference between rough endoplasmic reticulum (ER) and smooth endoplasmic reticulum (ER)?**
- Rough ER has lysosomes covering the organelle while smooth ER does not
 - Rough ER has ribosomes covering the organelle while smooth ER does not
 - Smooth ER releases energy while rough ER absorbs energy
 - Rough ER is found on the inside of the cell while smooth ER is found on the outside of the cell
11. **What does dominant homozygous mean?**
- One dominant and one recessive allele
 - Two dominant alleles
 - Two recessive alleles
 - Have no correct answer
12. **Which genotype is dominant homozygous?**
- BB
 - Bb
 - Bb
 - AB
13. **Which scientist devised laws of inheritance?**
- Einstein
 - Mendel
 - Newton
 - Kepler
14. **What kind of ratio specific for dihybrid inheritance?**
- 9:3:3:1 ratio

- b. 9:3:4 ratio
- c. 3:1 ratio
- d. 1:2:1 ratio

15. It is a part of the cell cycle when replicated chromosomes are separated into two new nucleuses. Cell division giving rise to genetically identical cells in which the chromosomes number is maintained. It is...

- a. Mitosis
- b. Meiosis
- c. Amitosis
- d. Myiasis

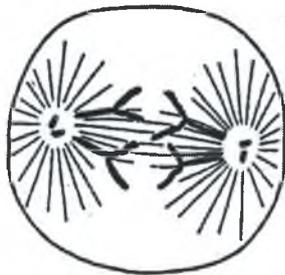
16. Three periods of the cell cycle (G1, G2, S) are combined into ...

- a. Telophase
- b. Metaphase
- c. Interphase
- d. Prophase
- e. Anaphase

17. Where one species benefits while the other is unaffected. It is...

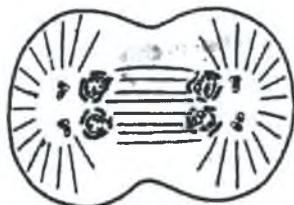
- a. Neutralism
- b. Parasitism
- c. Mutualism
- d. Commensalism

18. What kind of phase of Mitosis present in the diagram ?



- a. Prophase
- b. Anaphase
- c. Telophase
- d. Metaphase

19. What kind of phase of Mitosis present in the diagram ?



- a. Prophase

- b. Anaphase
- c. Telophase
- d. Metaphase

20. At what stage of the cell cycle does a cell prepare for division and DNA is doubled (4n)

- a. G2
- b. G0
- c. G1
- d. S



Tests for entrance exams in Biology

Variant № 3

- 1. What is central dogma of biology**
 - a. All biological manifestations of living systems are associated with replication, transcription and translation.
 - b. All living organisms have a cellular structure.
 - c. The presence of all the properties of a life gives us the opportunity to judge about object condition - it is alive or not.

- 2. The science which study cells is**
 - a. Cytology
 - b. Cellology
 - c. Histology
 - d. Kytarology
 - e. Kariology

- 3. What are two features that plant cells have that animal cells do not?**
 - a. lysosome and cell walls
 - b. cell wall and chloplasts
 - c. cell membrane and nucleolus

- 4. What cell feature contains digestive enzymes which breaks things down?**
 - a. lysosomes
 - b. ribosomes
 - c. vacuoles
 - d. endoplasmic reticulum

- 5. What regulates what enters and leaves the cell and provides protection and support?**
 - a. Nucleus
 - b. Cell Membrane
 - c. Ribosomes
 - d. Mitochondria

- 6. You will not find a cell wall in which of these kinds of organisms?**
 - a. Fungi
 - b. Animal
 - c. Plants
 - d. Algae

- 7. This organoid have the ability to convert solar energy into chemical energy and store it in food.**
 - a. Nucleoli
 - b. Mitochondria
 - c. chloroplasts

d. lysosomes

8. Which is NOT a macromolecule?

- a. DNA
- b. cellulose
- c. cholesterol
- d. water

9. Which part of the cell life cycle is NOT part of interphase?

- a. G1 phase
- b. M phase
- c. S phase
- d. G2 phase

10. Levels of life organization. In what order can you arrange the levels of organization of the living by complication?

- a. Molecular → Cellular → Organizational → Population-Specific → Ecosystem → Biosphere
- b. Biosphere → Molecular → Organizational → Cellular → Population → Ecosystem
- c. Molecular → Cellular → Population → Organically → Ecosystem → Biosphere
- d. Cellular → Population → Organically → Molecular → Biosphere → Ecosystem

11. What does recessive homozygous mean?

- a. One dominant and one recessive allele
- b. Two dominant alleles
- c. Two recessive alleles
- d. Have no correct answer

12. Which genotype is recessive homozygous?

- a. BB
- b. Bb
- c. bb
- d. Ab

13. What are alleles?

- a. X-shaped lengths of DNA
- b. A section of DNA that gives a characteristic
- c. Alternative forms of the same gene
- d. To different genes which present in different place of genome

14. What kind of ratio specific for non-complid dominance inheritance?

- a. 9:3:3:1 ratio
- b. 9:3:4 ratio
- c. 3:1 ratio
- d. 1:2:1 ratio

15. What breeding method do bacteria use ?

- a. Mitosis
- b. Meiosis
- c. Binary fission
- d. Myiasis

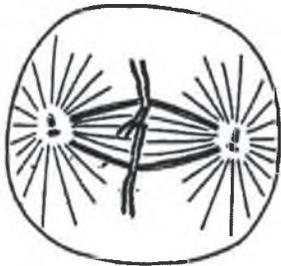
16. What happens in the anaphase I meiotic division?

- a. Chromosome conjugation
- b. Spindle formation
- c. Chromosome discrepancy to the poles
- d. Crossing over

17. Neither benefits. It is...

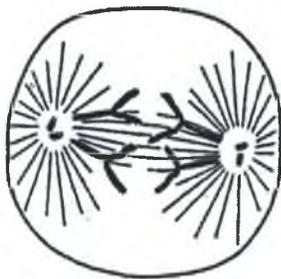
- a. Competition
- b. Neutralism
- c. Predation
- d. Parasitism

18. What kind of phase of Mitosis present in the diagram ?



- a. Metaphase
- b. Anaphase
- c. Telophase
- d. Prophase

19. What kind of phase of Mitosis present in the diagram ?



- a. Prophase
- b. Anaphase
- c. Telophase
- d. Metaphase

20. Which of these have prokaryotic cells?

- a. Snails
- b. bacteria
- c. frogs
- d. vorticella

Key in Biology

Variant № 1			
Q No	Corr. answer		
1.	b	11.	d
2.	a	12.	a
3.	b	13.	b
4.	a	14.	c
5.	C	15.	b
6.	A	16.	d
7.	C	17.	c
8.	A	18.	b
9.	c	19.	d
10.	c	20.	a

Variant № 2			
Q No	Corr. answer		
1.	b	11.	b
2.	b	12.	a
3.	c	13.	b
4.	b	14.	a
5.	C	15.	a
6.	A	16.	c
7.	C	17.	d
8.	C	18.	b
9.	d	19.	c
10.	b	20.	a

Variant № 3			
Q No	Corr. answer		
1.	a	11.	c
2.	a	12.	c
3.	B	13.	c
4.	a	14.	d
5.	b	15.	c
6.	b	16.	c
7.	C	17.	b
8.	d	18.	a
9.	b	19.	b
10.	a	20.	b