

Entrance Exam

BIOLOGY (30 questions, 90 minutes)

Name: _____

Questions 1-22, circle the correct answer.

1. The most important bio-catalyzers in living systems are:

- A. Hormones
- B. Vitamins
- C. Enzymes
- D. Cytokines
- E. Auxins

2. Fill in the words: A human gamete contains a _____ number of chromosomes, which is __ of them.

- A. Haploid
- B. Diploid
- C. 24
- D. 22
- E. 46
- F. 23

3. Transport tissues in plants are:

- A. Sclerenchyma
- B. Xylem
- C. Collenchyma
- D. Phloem
- E. Periderm

4. This makes up about 50-55% of blood and is yellowish in color.
- A. Leukocytes
 - B. Platelets
 - C. White blood cells
 - D. Plasma
5. Ecosystem includes:
- A. Biocenosis
 - B. Temperature
 - C. Light
 - D. Humidity
 - E. All of the above.
6. DNA strand of 1200 nucleotides length codes for a protein containing:
- A. 400 amino acids
 - B. 600 amino acids
 - C. 300 amino acids
 - D. 200 amino acids
7. Translation occurs in:
- A. Ribosomes
 - B. Nucleolus
 - C. Chromosomes
 - D. Mitochondria
8. A human zygote is formed by:
- A. Gametogenesis
 - B. Asexual reproduction
 - C. The union of male and female gamete.
 - D. The union of homologous chromosomes during meiosis.
9. Besides digestive juices pancreas produces hormone:
- A. Adrenalin
 - B. Insulin
 - C. Trypsin
 - D. Pepsin

10. All lipids are:
- A. Macromolecules
 - B. Made of carbon, oxygen, hydrogen and nitrogen
 - C. Water soluble
 - D. Not water soluble
11. The inner lining of the digestive tract is made up of what type of tissues?
- A. Muscular
 - B. Nervous
 - C. Epithelial
 - D. Connective
12. Genes carry the hereditary information from one offspring to another. What organic compound in genes is specifically designed for this task?
- A. Proteins
 - B. Enzymes
 - C. Lipids
 - D. Nucleic acids
13. How many ATP's do we get from glycolysis of one molecule of glucose?
- A. 2 ATP's
 - B. 36 ATP's
 - C. 5 ATP's
 - D. 10 ATP's
14. What base occurs in RNA instead of the nitrogenous base thymine found in DNA:
- A. Uracil
 - B. Cytosine
 - C. Guanine
 - D. Ribose
15. During transcription RNA polymerase has a role in:
- A. Termination
 - B. Elongation
 - C. Initiation
 - D. All of the above

16. If the total amount of adenine and thymine in a double-stranded DNA is 45%, the amount of guanine in this DNA will be:

- A. 22.5%
- B. 27.5%
- C. 45%
- D. 55%

17. The sequences of cell cycle is:

- A. S, M, G1, G2
- B. G1, G2, S, M
- C. M, G1, G2, S
- D. G1, S, G2, M

18. In what phase of cell cycle does DNA replication occur:

- A. G1
- B. S
- C. G2
- D. Prophase

19. Ovulation is:

- A. Ovarian cell development.
- B. Maturation of the follicle.
- C. The rupturing and releasing of fully developed ovarian cells.
- D. Ovarian cell maturation.
- E. Development of the follicle.

20. Ozone hole is greatest over:

- A. India
- B. Europe
- C. Antarctica
- D. Africa

21. Light microscope capable of magnification up to 275 times was invented by:

- A. Robert Hooke
- B. Louis Pasteur
- C. Antonie van Leeuwenhoek
- D. Theodor Schwann

22. Complementary heterocyclic bases in the DNA chain are:

- A. Adenine-Guanine
- B. Thymine-Guanine
- C. Guanine-Cytosine
- D. Adenine-Cytosine
- E. Adenine-Thymine

23-30. **Match expressions 23-30 with its counterparts a - k (NOTE: There can be more than one per expression):**

- a) Anticodon,
- b) Part of the gene expression process,
- c) Receiving and transferring the signal from the outside into the cell,
- d) Photosynthesis,
- e) Site of transcription,
- f) Absorbs light,
- g) DNA replication,
- h) RNA to proteins,
- i) Located in the cell membrane,
- j) Copying one double-strand DNA molecule into two double-strand DNAs,
- k) Centromere,
- l) Formation of somatic cells.

23. Nucleus_____

24. Translation_____

25. Chromosomes_____

26. Receptor _____

27. Mitosis _____

28. Chlorophyll_____

29. DNA polymerase_____

30. tRNA _____