

University of Belgrade – Faculty of Medicine

Studies in English

BIOLOGY

21. Which of the following is an organelle with a membrane?

- a) Endoplasmic reticulum
- b) Lysosome
- c) Golgi complex
- d) All answers are correct

22. Prokaryotic DNA:

- a) is linear
- b) is circular
- c) is within a nucleus
- d) is in the form of chromatin

23. Which organelle in the cell contains DNA?

- a) Mitochondrion
- b) Ribosome
- c) Endoplasmic reticulum
- d) Golgi complex

24. What is the simplest level of packaging of the eukaryotic DNA?

- a) nucleolus
- b) nucleoid
- c) nucleosome
- d) chromosome

25. Mitochondria

- a) are present in prokaryotic and eukaryotic cells
- b) have one membrane
- c) produce ATP
- d) produce steroid hormones

26. If A_1 and A_2 alleles exhibit incomplete dominance, what is the expected ratio of phenotypes after the $A_1A_2 \times A_1A_1$ cross?

- a) 3:1
- b) 2:1
- c) 1:1
- d) 1:2:1

27. In a population at Hardy-Weinberg equilibrium, 16% of individuals have the given recessive trait. What is the frequency of the dominant allele?

- a) 0.84
- b) 0.6
- c) 0.4
- d) 0.36

28. How many chromosomes are there in the human trisomic somatic cell?

- a) 23 chromosomes
- b) 45 chromosomes
- c) 47 chromosomes
- d) 3 chromosomes

29. Which antibodies are found in the plasma of a person with O blood type?

- a) Anti-A antibodies
- b) Anti-B antibodies
- c) Both Anti-A and Anti-B antibodies
- d) Neither Anti-A or Anti-B antibodies

30. A healthy woman marries a man with an X-linked recessive disease. What is the probability that this couple will have a son with this same disease?

- a) 100%
- b) 50%
- c) 25%
- d) 0%

31. Which of these statements is correct?

- a) The placenta transfers oxygen to the fetus.
- b) The placenta is an organ formed only of the maternal tissue.
- c) The placenta transfers carbon dioxide to the fetus.
- d) The placenta removes oxygen from the fetus.

32. During the S phase:

- a) DNA makes a copy of itself
- b) chromosomes become visible
- c) homologous chromosomes join together
- d) chromosomal fibers of the spindle shorten

33. During which stage of meiosis do homologous chromosomes join together?

- a) Metaphase I
- b) Zygotene
- c) Pachytene
- d) Anaphase II

34. How many DNA molecules are there in the human secondary oocyte in metaphase?

- a) 184
- b) 92
- c) 46
- d) 23

35. Which of the following cells are haploid?

- a) oogonia
- b) primary spermatocytes
- c) sperms
- d) primary oocytes

36. If the percentage of adenine in a DNA sample is 10%, what would be the percentage of other bases?

- a) T 90%, G 0%, C 0%
- b) T 40%, G 40%, C 10%
- c) T 10%, G 40%, C 40%
- d) T 20%, G 35%, C 35%

37. Which of these statements is correct?

- a) Introns are the coding sequences.
- b) Introns are never transcribed.
- c) Introns are present in the mature mRNA
- d) Introns are the noncoding sequences.

38. Which of these statements is correct?

- a) AUG is a STOP codon.
- b) Genetic code has 6 STOP codons.
- c) Genetic code has 64 sense codons.
- d) AUG codes for methionine.

39. DNA methylation is an example of:

- a) epigenetic mechanisms
- b) transcriptional control
- c) post-transcriptional control
- d) translational control

40. Which of these statements is correct?

- a) A plasmid is a circular, single-stranded DNA molecule.
- b) A plasmid is a circular, double-stranded DNA molecule.
- c) A plasmid is a linear, double-stranded DNA molecule.
- d) A plasmid contains the same genes as the main bacterial chromosome.