

1. Conjugation is

- a) asexual reproduction of bacteria -
- b) exchange of genetic material in bacteria +
- c) reproduction of viruses -
- d) exchange of genetic material mediated by viruses -

2. Latent viruses

- a) their RNA is incorporated in cellular genome -
- b) are symbiotic -
- c) their DNA is incorporated in cellular genome +
- d) can not carry oncogenes -

3. Prions are

- a) products of brain degeneration -
- b) protein particles +
- c) cause of genetic mutation -
- d) glycolipid particles -

4. The structure of bacteriophage contains

- a) head, tail, envelope -
- b) head, base plate, flagellum -
- c) head, flagellum, fibers -
- d) head, tail, base plate, fibers +

5. Cell wall of Gram positive bacteria contain thick layer of

- a) peptidoglycan +
- b) lipopolysaccharides -
- c) carbohydrates -
- d) lipoproteins -

6. Function of lysosomes is

- a) synthesis of enzymes -
- b) intracellular digestion +
- c) storage of proteins -
- d) phagocytosis -

7. Euchromatin contains

- a) Barr bodies -
- b) inactive genes -
- c) repetitive sequences -
- d) structural genes +

8. RNA processing of the primary transcript (pre-mRNA) includes

- a) polyadenylation of 3' end +
- b) excision of exons -
- c) methylation of introns -
- d) splicing -

9. Gregor Mendel DID NOT observe inheritance pattern in one of these characters of peas:

- a) flower color -
- b) seed shape -
- c) root length +
- d) pod shape -

10. Assign the alignment of genes on the chromosome, if AB $p=5\%$, BC $p=3\%$, and AC $p=2\%$ (p = Morgan number).

- a) ABC -
- b) ACB +
- c) BAC -
- d) CAB -

11. If a man with type AB blood marries a woman with type O blood, what blood types would you expect in their children?

- a) blood type A or blood type B +
- b) blood type A or blood type O -
- c) blood type B or blood type O -
- d) blood type A or blood type B or blood type O -

12. Match the statement: "Determines phenotype in a heterozygote" with the term:

- a) Codominant allele -
- b) Recessive allele -
- c) Incomplete dominant allele -
- d) Complete dominant allele +

13. What is the physical basis of Mendel's laws?

- a) the behavior of chromosomes during meiosis +
- b) the behavior of chromosomes during mitosis -
- c) the behavior of chromosomes during interphase -
- d) the behavior of chromosomes during S phase -

14. How many chromatids are in the somatic cell during G_2 phase?

- a) 23 -
- b) 46 -
- c) 92 +
- d) impossible to define -

15. How many Barr bodies you can find in cells of individuals with karyotype 47, XXX?

- a) 0 -
- b) 1 -
- c) 2 +
- d) 3 -

16. In population at equilibrium, on a gene with 2 alleles; the frequency of dominant allele is 70%, the frequency of recessive allele is 30%. What is the frequency of dominant phenotype?

- a) 0.70 -
- b) 0.49 -
- c) 0.91 +
- d) 0.42 -

17. Synthesis of extracellular matrix in bones is done by

- a) osteoblasts +
- b) osteocytes -
- c) osteoclasts -
- d) osteopores -

18. Functions of epithelia include

- a) conduction, contraction -
- b) absorption, secretion +
- c) sensation, photosynthesis -
- d) will control, respiration -

19. Nerve system develops from

- a) mesoderm -
- b) endoderm -
- c) ectoderm +
- d) mesenchyme -

20. Aorta originates in

- a) right atrium -
- b) right ventricle -
- c) left ventricle +
- d) left atrium -

21. In atmosphere there is ... of oxygen

- a) 21% +
- b) 78% -
- c) 2% -
- d) 36% -

22. Which process occurs in the small intestine?

- a) absorption of nutrients +
- b) production of bile -
- c) taste sensation -
- d) mixing of the chyme with hydrochloride acid -

23. Function of renal duct system is

- a) secretion of amino acids -
- b) excretion of amino acids -
- c) reabsorption of amino acids +
- d) degradation of amino acids -

24. In mammals, milk release by mammary glands is controlled by oxytocin hormone.

Regulating pathway of this event is called:

- a) negative feedback -
- b) hypothalamus feedback -
- c) pituitary feedback -
- d) positive feedback +

25. A cell's membrane potential shifts from -70mV to -50mV . What changes in the cell's permeability could cause such a shift?

- a) an increase in permeability to Ca^+ -
- b) an increase in permeability to Li^+ -
- c) an increase in permeability to Mn^+ -
- d) an increase in permeability to Na^+ +

26. Supporting cells of CNS (glia) lining of central canal and ventricles are called:

- a) astrocytes -
- b) ependyma +
- c) oligodendrocytes -
- d) Schwann cells -

27. In CNS, primary motor cortex is located:

- a) in frontal lobe +
- b) in parietal lobe -
- c) in temporal lobe -
- d) in occipital lobe -

28. Focusing in the mammalian eye on nearby objects:

- a) lens does not change -
- b) lens becomes flatter -
- c) lens becomes thicker and rounder +
- d) lens becomes contract and smooth -

29. Which statement is NOT correct?

- a) Undernourished persons have diets deficient in calories. -
- b) Malnourished persons are missing one or more essential nutrients. -
- c) Undernourished persons have diets deficient in dietary minerals. +
- d) Malnourished persons have diets deficient in proteins. -

30. Which sequence of the pyramid of life in an ecosystem is correct?

- a) solar energy – herbivores – plants – carnivores -
- b) solar energy – carnivores – herbivores – plants -
- c) solar energy – plants – carnivores – herbivores -
- d) solar energy – plants – herbivores – carnivores +