

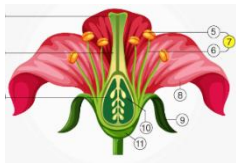


**XPertSTEM Biology Sample Test Division 4 for Grade 9 & 10**

1. Which phase of mitosis comes immediately before the phase in the image?  

  - a. **anaphase**
  - b. prophase
  - c. telophase
  - d. metaphase
2. What kind of structure is the molecule shown in the diagram?  

  - a. multi-strand
  - b. ladder
  - c. **double helix**
  - d. double vertex
3. A bird that stops responding to a repeated warning call when the call is not followed by an attack is an example of....
  - a. classical conditioning
  - b. **habituation**
  - c. operant conditioning
  - d. insight learning
4. Which scenario is NOT an example of innate behaviour?
  - a. a worm moving away from bright light
  - b. **a dog looking for its food dish**
  - c. a baby mammal sucking milk
  - d. a spider spinning a web
5. The nerve cells that transmit information to the central nervous system from the senses of sight, hearing, taste, touch, and smell are...
  - a. **sensory neurons.**
  - b. motor neurons.
  - c. interneurons.
  - d. messenger neurons.
6. What is haemoglobin?
  - a. **the oxygen-carrying molecule of a red blood cell**
  - b. the oxygen-storing molecule of muscle cells
  - c. a layer of fat cells between the skin and muscle of marine mammals
  - d. the rounded, fat-filled region of a toothed whale's forehead
7. The new cell that is formed from fertilization is a(n)...
  - a. ovum.
  - b. **zygote.**
  - c. sperm.
  - d. gamete.
8. Polymers are built from smaller subunits called...
  - a. **monomers**
  - b. macromolecules
  - c. macromers
  - d. neutrons

9. The part of the plant that contains the ovule or egg is the?

- a. stigma
- b. sepal
- c. **ovary**
- d. style



10. The woody tissue of a stem that carries water and dissolved materials upward from the roots to the leaves is the...

- a. **xylem.**
- b. phloem.
- c. trachea.
- d. parenchyma.

11. The structures that synthesize proteins in cells are the...

- a. **ribosomes.**
- b. Golgi apparatus.
- c. lysosomes.
- d. vacuoles

12. The base pair rule states that...

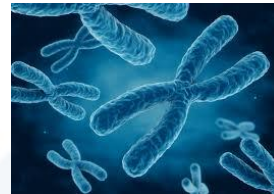
- a. replication is semiconservative.
- b. **A pair with T, and G pairs with C.**
- c. DNA is a double helix held together by hydrogen bonds.
- d. A pair with G, and T pairs with C.

13. Given the following DNA strand, what is its complementary mRNA?  
G G A C T G A T T?

- a. CCTGACTAA
- b. **CCUGACUAA**
- c. GGACTGATT
- d. TTAGTCAGG

14. Human body cells have chromosomes, or \_\_\_pairs, that each parent contributes.

- a. **46; 23**
- b. 56; 28
- c. 28; 56
- d. 23; 46



15. The mass of specialized tissue and blood vessels by which a developing mammal embryo is nourished is the....

- a. plastron
- b. **placenta**
- c. blastula
- d. marsupium

16. Compared with the adolescent growth spurt in boys, the growth spurt in girls...

- a. starts later
- b. lasts longer
- c. **starts sooner**
- d. has a faster rate of growth

17. Autotrophs are organisms that...

- a. eat each other.
- b. decompose for food.
- c. **make their own food.**
- d. scavenge for food.

18. What is the smallest air passage in the lungs called?

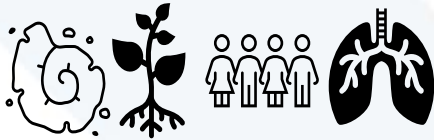
- a. **bronchiole**

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- b. alveoli
- c. pulmonary capillaries
- d. bronchi

**19. Which factor does NOT support Darwin's theory of evolution?**

- a. fossil record
- b. homologous structures
- c. similarities in embryos
- d. differences in plants



**20. During a study session about evolution, one of your fellow students remarks, "The giraffe stretched its neck while reaching for higher leaves; its offspring inherited longer necks as a result." Which statement is most likely to be helpful in correcting this student's misconception?**

- a. Characteristics acquired during an organism's life are generally not passed on through genes.
- b. Spontaneous mutations can result in the appearance of new traits.
- c. Only favorable adaptations have survival value.
- d. Disuse of an organ may lead to its eventual disappearance.

**21. Which of the following organs produce gametes?**

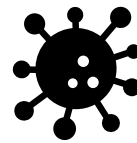
- a. Uterus
- b. vagina
- c. testes
- d. pelvic girdle

**22. Which pathogen causes the common cold?**

- a. bacterium
- b. virus
- c. protozoan
- d. yeast

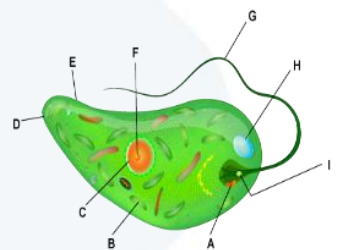
**23. What process do bacteria generally use for reproduction?**

- a. meiosis
- b. mitosis
- c. binary fission
- d. conjugation



**24. On the diagram of the euglena, what is the primary function of structure B?**

- a. protection
- b. reproduction
- c. homeostasis
- d. photosynthesis



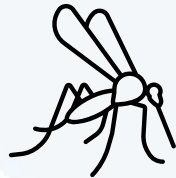
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25. On the diagram of the euglena, what is the name & primary function of structure I?

- a. Flagellum - propelling
- b. Paraflagellar body – storage of waste
- c. **Reservoir – housing and storage of nutrients and waste**
- d. Nucleus - control

26. Plasmodium, which cause malaria, would be classified as part of the kingdom...

- a. Monera
- b. **Protista**
- c. Fungi
- d. Plantae



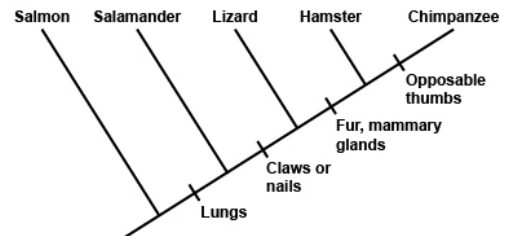
27. Vertebrates belong to phylum...

- a. **Chordata**
- b. Animalia
- c. Fungi
- d. Protista

28. Cold-blooded vertebrates are also called...

- a. endotherms.
- b. **ectotherms.**
- c. thermoclines.
- d. Poikilodermas

29. Based on the cladogram, which statement is true about relatedness between the organisms?



- a. A salmon is more closely related to a hamster than it is to a lizard.
- b. A lizard and a chimpanzee are more closely related than a hamster and a chimpanzee.
- c. **A salamander and a salmon are more closely related than a hamster and a salmon.**
- d. A chimpanzee is more closely related to a salmon than a hamster is to a salamander.
- e. All the animals are equally related

30. There are four mystery animals labelled A, B, C, and D. Animals A and B share the same phylum. Animals B and C share the same order. Animals C and D share the same genus. Based on this information, what animals are **MOST LIKELY** to be similar?

- a. A and B
- b. B and C
- c. **C and D**
- d. A and D