

# 銘傳大學九十二學年度管理研究所碩士班招生考試

## (甲組) 第一節

### 生物學 試題

Biology Examination: (每題 2 分)

1. Which group includes the simplest of organisms that lack nuclei?  
a. Archaeobacteria b. Protista c. Fungi d. Algae
2. All living things are able to maintain stable internal conditions, whether they are unicells or complex, multicellular organisms. This property is called:  
a. Metabolism b. Homeostasis c. Heredity d. Cellular organization
3. The different populations of all the species in a given area make up a(n)  
a. Community b. Association c. Ecosystem d. Population
4. What structures are found within bacterial cells?  
a. Ribosomes b. Chloroplasts c. Nucleus d. Mitochondria
5. \_\_\_\_\_ function in the collection, packaging, and distribution of molecules made in the cell.  
a. Mitochondria b. Ribosomes c. Golgi bodies d. Vesicles
6. Two organelles which are believed to have once been free-living bacterial cells are \_\_\_\_\_ and \_\_\_\_\_.  
a. ribosomes; nucleolus b. Golgi, complex; endoplasmic reticulum  
c. peroxisomes; lysosomes d. chloroplasts; mitochondria
7. Which of the following processes requires BOTH a channel protein AND energy?  
a. active transport b. facilitated diffusion c. osmosis  
d. simple diffusion
8. Reactions that tend to go on their own, releasing energy, are called:  
a. endergonic b. exergonic c. catalytic d. productive
9. Which of the following factors do NOT influence the action of enzymes?  
a. temperature of the cytoplasm b. presence of fluids in the cell  
c. pH of the cytoplasm d. shape of the enzyme
10. ATP is composed of a sugar, the organic base adenine, and:  
a. three phosphate groups b. two phosphate groups c. three nitrate groups  
d. phenylalanine

11. During photosynthesis, ATP molecules are generated by :
  - a. the Calvin cycle
  - b. chemiosmosis
  - c. the electron transport
  - d. light striking the chlorophyll molecules
12. The overall purpose of the Calvin cycle is to:
  - a. generate molecules of ATP
  - b. generate NADP
  - c. give off oxygen for animal use
  - D. build organic (carbon) molecules
13. What is needed for the end product of glycolysis, pyruvate, to enter the Krebs cycle?
  - a. more glucose for energy
  - b. ATP
  - c. carbon dioxide
  - d. oxygen
14. Bacterial cells divide by :
  - a. mitosis
  - b. cleavage
  - c. cytokinesis
  - d. binary fission
15. During which phase of the cell cycles is DNA synthesized?
  - a. G1
  - b. G2
  - c. S
  - d. M
16. Proteins with positive charges that are wrapped around DNA within chromosomes are:
  - a. chromatids
  - b. histones
  - c. centromeres
  - d. kinetochores
17. Replicate copies of each chromosome are called \_\_\_\_\_ and are joined at the \_\_\_\_\_.
  - a. homologues; centromeres
  - b. sister chromatids; kinetochores
  - c. sister chromatids; centromeres
  - d. homologues; kinetochores
18. The proper sequence, beginning to end, for the stages of mitosis is:
  - a. prophase-metaphase-ana phase-telophase
  - b. telophase-anaphase-meta phase-prophase
  - c. anaphase-prophase-meta phase-telophase
  - d. prophase-anaphase-meta phase-telophase
19. In the human ABO blood grouping, there are four basic blood types, type A, type B, type AB, and type O. The blood proteins A and B are:
  - a. simple dominant and recessive traits
  - b. codominant
  - c. incompletely dominant
  - d. sex-linked traits
20. If one strand of a DNA molecule has the base sequence ATTGCAT, its complementary strand will have the sequence (from 3' to 5'):
  - a. ATTGCAT
  - b. TAACGTA
  - c. GCCATGC
  - d. CGGTACG
21. The mRNA has a three-nucleotide sequence called a \_\_\_\_\_, while the

molecule transporting the amino acid has a complementary sequence called a(n) \_\_\_\_\_.

- a. anticodon;codon
- b. triplet code; stop codon
- c. base, complementary base
- d. codon; anticodon

22. When researchers wish to make multiple copies of a gene without first inserting it into a bacterium, they employ the:

- a. centrifuge
- b. pepsin activation reaction
- c. polymerase chain reaction
- d. gel electrophoresis

23. The enzyme used to make a DNA copy complementary to processed mRNA is :

- a. transcriptase
- b. reverse transcriptase
- c. RNA polymerase
- d. DNA polymerase

24. All of the genes and other DNA of an organism constitute its:

- a. genome
- b. proteomes
- c. exons
- d. introns

25. The new area of science that seeks to catalog and analyze every protein in the human body in order to help understand the human genome is called:

- a. bioinformatics
- b. proteomics
- c. genomics
- d. molecular genetics

26. The scientific names we use to identify organisms are in the form of :

- a. Greek
- b. polynomials
- c. nicknames
- d. binomials

27. Archaeobacteria and eubacteria differ in following respects EXCEPT:

- a. differences in the composition of their cell walls
- b. differences in cell membrane structure differences in how they
- c. differences in how they reproduce by binary fission
- d. archaeobacterial genes possess introns, while bacterial genes do not

28. The first type of symmetry to develop, and seen in cnidarians, was:

- a. bilateral symmetry
- b. radial symmetry
- c. contralateral symmetry
- d. medial symmetry

29. The body contains 11 different organ systems. The \_\_\_\_\_ system responsible for secreting the hormones that help integrate the body's activities.

- a. digestive
- b. nervous
- c. circulatory
- d. endocrine

30. The organ system of the human body that removes metabolic wastes from the bloodstream is the \_\_\_\_\_ system.
- digestive
  - urinary
  - lymphatic
  - respiratory
31. \_\_\_\_\_ are a type of connective tissue cell that secrete proteins, especially collagen, and are active in wound healing.
- cartilage cells
  - erythrocytes
  - fibroblasts
  - bone cells
32. The portion of a nerve cell that carries nerve impulses away from the cell is the:
- glia
  - cell body
  - dendrite
  - axon
33. How do veins prevent the backflow of blood within them?
- by having thick, muscular walls
  - because of the tiny lumen inside them
  - they are capable of contracting
  - they possess flaplike valves
34. After blood flows through the right ventricle of the human heart, its next major destination is to:
- the lungs
  - the arms
  - the systemic system
  - the left ventricle
35. Trace the wave of depolarization through the heart.
- SA node->atria->ventricles->AV node->bundle of His->Purkinje fibers
  - AV node->atria->SA node->ventricles->Purkinje fibers->bundle of His
  - AV node->atria->SA node->Purkinje fibers->bundle of His->ventricles
  - SA node->atria->AV->node->bundle of His->Purkinje fibers->ventricles

36. Animals that consume both plant material and other animals are called:
- herbivores
  - carnivores
  - omnivores
  - detritivores
37. The first site of starch breakdown in the digestive system is:
- in the small intestines
  - in the stomach
  - the mouth
  - the esophagus
38. A molecule that induces an immune response within an organism is called:
- an interleukin
  - a lymphocyte
  - an antibody
  - an antigen
39. \_\_\_\_\_ secrete antibodies
- B cells
  - T cells
  - Helper T cells
  - Natural killer cells
40. A nerve impulse travels from one neuron to the next across the synapse between them using:
- calcium
  - glial cells
  - schwann cells
  - in the endoplasmic reticulum of the cell
41. The portion of the body that ultimately controls the female menstrual cycle is the:
- hypothalamus
  - anterior pituitary
  - ovaries
  - uterus
42. Choose the best definition of the term "ecology"
- hypothalamus
  - anterior pituitary
  - ovaries

- d. uterus
43. Choose the best definition of the term “ecology”.
- a. ecology is the study of animals in their habitat.
  - b. Ecology is the study of plants and animals in their ecosystems
  - c. Ecology is the study of communities of organisms.
  - d. Ecology is the study of interactions of organisms with each other and with their haibt.
44. Plants obtain the carbon used in the manufacture of organic compounds from:
- a. organic compounds in the soil
  - b. carbon dioxide in the atmosphere
  - c. fossil fuels
  - d. carbon dioxide in the soil
45. The rate at which a population can increase when food and habitat are limitless is called:
- a. population expansion
  - b. sigmoid growth
  - c. logistic growth
  - d. the biotic potential
46. Air and water pollution result mainly from:
- a. increased industrialization
  - b. agricultural chemicals
  - c. improper waste disposal
  - d. all of these are correct
47. Acid rain is so deadly because it:
- a. changes the pH of the ecosystems it falls into
  - b. linds animals
  - c. increases rates of cancer
  - d. adheres to breathing passages
48. The vector that transfers the malarial parasite to humans is the:
- a. mosquito
  - b. fly
  - c. meat
  - d. amoeba
49. In plants, primary growth occurs at a growing center called a(n):
- a. apical meristem
  - b. lateral meristem
  - c. any meristem

- d. cork cambium
50. \_\_\_\_\_ cells lack cytoplasm at maturity, are tough and thick-walled, are serve to strengthen tissues.
- a. parenchyma
  - b. collenchyma
  - c. sclerenchyma
  - d. meristem

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