

國立高雄大學九十七學年度研究所碩士班招生考試試題

系所：

科目：專業英文

生物科技研究所碩士班甲組

是否使用計算機：否

考試時間：100 分鐘

生物科技研究所碩士班乙組

本科原始成績：100 分

一、解釋名詞（請寫出每個專有名詞最適切的中文翻譯及解釋，每題 4 分）

1. agribiotechnology
2. genetically modified organisms (GMOs)
3. natural selection
4. Human Genome Project
5. acquired immunodeficiency syndrome (AIDS)
6. electron microscope
7. gene cloning
8. plant hormone
9. ecosystems
10. bioinformatics

二、是非題（請以○或×進行作答，每題 2 分）

1. Compounds containing carbon are said to be inorganic, and the branch of chemistry that specializes in the study of carbon compounds is called inorganic chemistry.
2. Flower, the reproductive shoots of the angiosperm sporophyte, are typically composed of four whorls of highly modified leaves called floral organs, which are separated by very short internodes.
3. The mammalian digestive system consists of the alimentary canal and various accessory glands that secrete digestive juices into the canal through ducts.
4. An organism's development is determined by the genome of the zygote and also by differences that arise between early embryonic cells.
5. Behavior, which includes muscular as well as nonmuscular activity, is everything that an animal does and how it does it. For example, learning is not generally considered a behavioral process.
6. Of the 100,000 known species of fungi, about 30% make their living as parasites, mostly on or in animals.
7. A genomic library is the collection of recombinant vector clones produced by cloning DNA fragments derived from an entire genome.
8. Normal human somatic cells have 48 chromosomes made up of two sets—one set of 24 chromosomes derived from each parent.
9. Carbon, oxygen, hydrogen, and nitrogen make up approximately 96% of living matter.
10. In discovery science, scientists describe some aspect of the world and use inductive reasoning to draw general conclusions.

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三、選擇題（請以大寫 ABCDE 作答，每題 2 分）

1. Which of the following statements best distinguishes hypotheses from theories in science?
 - A. Theories are hypotheses that have been proved.
 - B. Hypotheses are guesses; theories are correct answers.
 - C. Hypotheses usually are relatively narrow in scope; theories have broad explanatory power.
 - D. Hypotheses and theories are essentially the same thing.
 - E. Theories are proved true in all cases; hypotheses are usually falsified by tests.
2. Which of the following tools of recombinant DNA technology is *incorrectly* paired with its use?
 - A. restriction enzyme-production of RFLPs
 - B. DNA ligase-enzyme that cuts DNA, creating the sticky ends of restriction fragments
 - C. DNA polymerase-used in a polymerase chain reaction to amplify sections of DNA
 - D. Reverse transcriptase-production of cDNA from mRNA
 - E. Electrophoresis-separation of DNA fragments
3. Compare to a smaller cell, a larger cell of the same shape has
 - A. less surface area.
 - B. less surface area per unit of volume.
 - C. the same surface-to-volume ratio.
 - D. a smaller average distance between its mitochondria and the external source of oxygen.
 - E. A smaller cytoplasm-to-nucleus ratio.
4. Which of the following is an example of a hydrophobic material?
 - A. paper
 - B. table salt
 - C. wax
 - D. sugar
 - E. pasta
5. Which of the following is *not* a protein?
 - A. hemoglobin
 - B. cholesterol

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C. an antibody

D. an enzyme

E. insulin

6. Which structure is incorrectly paired its tissue system?

A. root hair-dermal tissue

B. palisade parenchyma-ground tissue

C. guard cell-dermal tissue

D. companion cell-ground tissue

E. tracheid-vascular tissue

7. A fruit is a (an)

A. mature ovary.

B. mature ovule.

C. seed plus its integuments.

D. fused carpel.

E. Enlarged embryo sac.

8. Which of the following areas of study focuses on the exchange of energy, organisms, and materials between ecosystems?

A. population ecology

B. organismal ecology

C. landscape ecology

D. ecosystem ecology

E. community ecology

9. The smallest biological unit that can evolve over time is

A. a cell.

B. an individual organism.

C. a population.

D. a species.

E. an ecosystem.

10. An element is to a (an) _____ as an organ is to a (an) _____.

A. atom; organism

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- B. compound; organism
- C. molecule; cell
- D. atom; cell
- E. compound; organelle

四、英翻中（請將下列句子翻譯成為中文，每題 5 分）

1. In April 1953, James Watson and Francis Crick shook the scientific world with an elegant double-helical model for the structure of deoxyribonucleic acid, or DNA. Over the past 50 years, their model has evolved from a novel proposition to an icon of modern biology.
2. In most nuclear transplantation studies thus far, only a small percentage of cloned embryos develop normally to birth. And like Dolly, many cloned animals exhibit various defects.
3. Questions about the earliest stages in the origin of life on Earth may never be fully answered because, as far as we know, there is no record of these ancient events. Many later events, however, are well documented in the fossil record. Careful study of fossils opens a window into the lives of organisms that existed long ago and provides information about the evolution of life over billions of years.
4. A variety of life cycles have evolved among the multicellular algae. The most complex life cycles include an alternation of generations, the alternation of multicellular haploid and diploid.