

國立高雄師範大學九十四學年度碩士班招生考試試題

系所別：科學教育研究所

科目：生物學（共 4 頁，第 2 頁）

7. A gene is usually _____.
A. the same thing as a chromosome B. the information for making a polypeptide
C. made of RNA D. made by a ribosome
E. made of protein
8. Which one of the following statements is true?
A. Each DNA base codes for three amino acids.
B. Each gene codes for three proteins.
C. It takes three genes to code for one protein.
D. Each triplet has many different meanings.
E. Each amino acid in a protein is coded for by three bases in the DNA.
9. One strand of a DNA molecule has the following sequence: 3'-AGTACAAACTATCCACCGTC-5'. In order for transcription to occur in that strand, there would have to be a specific recognition sequence, called a(n) _____, to the left of the DNA sequence indicated.
A. centromere B. intron C. exon D. codon E. promoter
10. Much of genetic engineering uses plasmids, which are _____.
A. repeating sequences that protect DNA from digestion when it is inserted into a foreign cell
B. small circlets of DNA found in bacteria
C. segments of RNA that must be attached to DNA before the DNA can replicate
D. ends of cut DNA molecules that are "sticky" because they have unpaired base sequences
E. infectious proteins
11. When a typical restriction enzyme cuts a DNA molecule, the cuts are staggered so that the DNA fragments have single-stranded ends. This is important in recombinant DNA work because _____.
A. it allows a cell to recognize fragments produced by the enzyme
B. the single-stranded ends serve as starting points for DNA replication
C. the fragments will bond to other fragments with complementary single-stranded ends
D. it enables researchers to use the fragments as introns
E. only single-stranded DNA segments can code for proteins
12. Gene therapy involves _____.
A. adding a functioning version of the defective gene to the cells of an individual
B. allowing individuals to follow the natural progression of a genetic disorder, accompanied by psychological counseling, then treating with drugs only when the condition becomes life-threatening
C. No serious ethical questions
D. replacing organs affected with genetic disorders by transplants
E. All of these

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13. Potential benefits of the Human Genome Project include learning about _____.
A. embryonic development B. the treatment of diseases
C. the prevention of diseases D. evolution E. All of these
14. Which of the following are nonvascular but have adaptations that green algae lack (such as a cuticle and stomata)?
A. mosses B. ferns C. angiosperms D. gymnosperms E. brown algae
15. The innovation essential to the survival of bryophytes on land was _____.
A. freedom from the need for water to reproduce B. flowers
C. chlorophyll D. vascular tissue
E. the retention of the embryo on the parent plant
16. Alternation of generations _____.
A. Is unique to plants
B. consists of a diploid gametophyte stage alternating with a haploid sporophyte stage
C. in extant plants cycles between stages with similar appearance
D. Is distinguished by haploid and diploid stages that are both multicellular
E. none of the above
17. The defining reproductive adaptation of angiosperms is the _____.
A. flower B. gymnosperm C. sporophyte D. gametophyte E. germinated pollen grain
18. Where do developing sperm cells undergo meiosis?
A. in the epididymis B. in the vas deferens C. in the seminal vesicle
D. in the seminiferous tubules E. in the prostate gland
19. Birth control pills contain synthetic estrogen and progesterone. How might these hormones prevent pregnancy?
A. They trigger premature ovulation, before an egg is mature.
B. They cause the lining of the uterus to be sloughed off.
C. They cause the corpus luteum to degenerate.
D. They keep the pituitary from secreting FSH and LH, so ovulation does not occur.
E. They prevent the monthly development of the uterine lining.
20. Someone may have webbed toes because _____.
A. of a failure of gestation B. of a failure of apoptosis C. of a failure of induction
D. they are displaying characteristics of humans' avian ancestry E. of a failure of menstruation
21. The rate of transpiration is expected to be greatest on a _____ day.
A. cool and moist B. warm and moist C. cool and dry
D. warm and dry E. windy and cool

