臺北醫學大學 九十二 學年度第 一 學期 期中/期末 考試 命(試)題紙

系級	科目	授課教師	考試日期	學號	姓名
呼吸一	普通生物學	楊良友	93年1月15日第1節		

※①請注意本試題共 4 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
②每張試題卷務必填寫(學號)、(姓名)。

General Biology Final Exam **Fall 2003** **Instructor: Dr. Liang-Yo Yang**
呼吸治療學系

This final exam consists of four parts: Part I to Part IV (115 points in total).
Part I has 5 multiple choice questions and each question is 3 points (15 points in total). Part II includes 2 simple essay questions regarding your presentation of Nobel Laureates (15 points in total). Part III has 3 simple essay questions (35 points in total). Part IV is composed of 12 multiple choice questions and 13 fill-in-the-blank questions. Each question is worth 2 points and the total is 50 points in this part. **Please remember to write down your name and student ID on each page of this exam. I wish you all do well in this final exam and have a great Chinese New Year and winter break!**

Part I: There are 5 multiple choice questions in Part I and each question is worth 3 points (15 points in total). Please write down your answer in the space provided in front of each question. Please choose **ONE AND THE ONLY ONE BEST ANSWER** for each question.

1. _____ An area with an exceptional concentration of species and a large number of endangered and threatened species is called (a) biodiversity hot spot. (b) biome. (c) coniferous forest. (d) intertidal zone. (e) niche.
2. _____ Of the following factors with the potential to influence the distribution of a natural population, which one is biotic factor? (a) air. (b) predator. (c) solar energy. (d) temperature. (e) water.
3. _____ The bird that spreads all over North America from 120 to 100,000,000 individuals is (a) cuckoo. (b) graylag goose. (c) loon. (d) love bird. (e) starling.
4. _____ In which a palatable or harmless species that mimics an unpalatable or harmful model is called (a) Batesian mimicry. (b) camouflage. (c) imitation. (d) imprinting. (e) Müllerian mimicry.
5. _____ The symbiotic relationship, in which one partner benefits without significantly affecting the other, is known as (a) commensalism. (b) competition. (c) mutualism. (d) parasitism. (e) predation.

Part II: There are two essay questions that are worth 15 points in this part.

1. Please write down the names of **two** Nobel Laureates that were presented by your classmates (10 points)

2. Please write down the name and his contributions of any Nobel Laureates presented by your classmates (5 points)

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Part III. There are 3 simple essay questions (35 points in total). Please answer each question in the space provided below.

1. Please describe how cell signaling and induction in the development of the nematode vulva (10 points)

2. Please explain why the restriction enzymes only digest the foreign DNA but do not digest bacterial genome. (5points)

3. Please explain the following terms in complete sentences (4 points each)

(a) clone

(b) genomic library

(c) totipotency

(d) homeobox

(e) vector

私立臺北醫學院 九十二 學年度第 一 學期 期中/期末 考試 命(試)題紙

系級	科目	授課教師	考試日期	學號	姓名
呼吸一	普通生物學	楊良友	93年1月15日第 節		

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) What does transformation involve in bacteria?
A) the creation of a strand of DNA from an RNA molecule
B) the creation of a strand of RNA from a DNA molecule
C) the infection of cells by a phage DNA molecule
D) the type of semiconservative replication shown by DNA
E) assimilation of external DNA into a cell

2) In an analysis of the nucleotide composition of DNA, which of the following is *true*?
A) A = C
B) A = G and C = T
C) A + C = G + T
D) A + T = G + C
E) Both B and C are true.

Refer to the following list of enzymes to answer the following questions. The answers may be used once, more than once, or not at all.

A. *helicase*
B. *nuclease*
C. *ligase*
D. *DNA polymerase*
E. *primase*

3) catalyzes synthesis of a new strand of DNA

4) enhances separation of DNA strands during replication

5) covalently connects segments of DNA

6) synthesizes short segments of RNA

7) a DNA-cutting enzyme in the repair of damage to DNA

8) Genetic recombinants are produced by
A) X inactivation.
B) methylation of cytosine.
C) crossing over and independent assortment.
D) nondisjunction.
E) deletions and duplications during meiosis.

9) When does crossing over occur during meiosis?
A) metaphase I B) anaphase II C) prophase I D) prophase II E) anaphase I

10) A cell that has $2n + 1$ chromosomes
A) is trisomic.
B) is monosomic.
C) is aneuploid.
D) is polyploid.
E) is both A and C.

私立臺北醫學院 九十二 學年度第 一 學期 期中/期末 考試 命(試)題紙

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11) What do all human males inherit from their mother?

A) mitochondrial DNA
B) an X chromosome
C) the gene for normal gonad development (SRY)
D) A and B
E) A, B, and C

12) One possible result of chromosome breakage can be that a fragment reattaches to the original chromosome in a reverse orientation. This is called

A) disjunction. B) translocation. C) deletion. D) inversion. E) aneuploidy.

填入適當之名詞.

A summary of the flow of genetic information in protein synthesis is useful as an overview. Identify the indicated parts of the illustration on the next page by filling in the blanks with the names of the appropriate structures or functions. Choose from the following: DNA, mRNA, tRNA, polypeptide, rRNA subunits, intron, exon, mature mRNA transcript, new mRNA transcript, anticodon, amino acids, ribosome-mRNA complex.

13. _____
14. _____
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15. _____ ( )
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