

大同大學 九十 學年度 轉學考試 試題

考試科目：生物 系別：生物工程學系

級別：二年級 第 / 頁，共 / 頁

註：本次考試不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

一、選擇題 (3 pt each)

1. "Chemiosmosis reaction" (a) happened in chloroplast and mitochondria (b) happened in chloroplast only (c) to produce NADPH (d) use H₂O as e⁻ donor in chloroplast
2. Osmosis (a) is a active transport (b) is diffusion of dissolved substance across differentially permeable membrane (c) need a membrane protein to facilitate its reaction (d) need to spend ATP
3. A membrane protein (a) is produced by genes localized in nucleolus (b) is synthesized in smooth ER (c) is packaged and processed in Golgi complex (d) is packaged and transport to membrane via liposome
4. (a) C₃ plant use PEP to fix CO₂ (b) C₄ plant perform the CO₂ fixation in both mesophyll cell and bundle-sheath cell (c) photorespiration normally happen in C₃ plant in stead of C₄ plant when in hot and dry weather (d) CO₂ fixation occurred in bundle-sheath cell in C₃ plant
5. "Double fertilization" (a) happen in both dicotyledonous and monocotyledonous plants (b) only happen in monocotyledon plants (c) in which two sperm cells fuse with two eggs (d) will only produce a 2N embryo
6. During fetal development, oogonia in human females stop meiosis at (a) the secondary oocyte stage (b) metaphase of meiosis I (c) prophase of meiosis I (d) prophase of meiosis II
7. Pseudostratified columnar epithelia can be found at lines of the (a) lung alveoli (b) vas deferens (c) kidney tubules (d) esophagus
柱狀、魚鱗、立方體
8. Which of the following is NOT correct? (a) Cholecystokinin is produced by pancreas and stimulates the release of bile (b) Fatty acid in chyme stimulate the production of gastric inhibitory peptide (c) Gastrin secretion is stimulated by foods in mouth and peptides in stomach (d) Gastrin secretion is inhibited by increased acid production in stomach
9. Body cell infected by viruses are destroyed mostly by (a) IgA (b) histamines (c) natural killer cells (d) phagocytes
10. (a) Hormones binding to cell surface receptors are soluble in lipid (b) An increase in estrogen synthesis is stimulated by luteinizing hormone (c) Epinephrine and norepinephrine are produced by adrenal cortex (d) Antidiuretic hormone is produced by anterior pituitary glands
ADH

7. filtration, reabsorption, secretion.

Zg6

ZgA

ZgM

ZgD

ZgE

amino

primary

secondary

tri

amino acid

phloem

bone

cartilage

one

two

three

four

five

six

seven

eight

nine

ten

eleven

twelve

thirteen

fourteen

fifteen

二、問答題 *需光的氧化還原反應，可製造 ATP. krebs cycle.*

1. 何謂光呼吸？一般發生於以下哪一類植物 (C₃, C₄, CAM)? ----5 pt *葉綠體管束*
2. 請比較單子葉和雙子葉植物的差異並繪製兩者根部的橫切面圖。 ----8 pt *散生維管束*
3. 請列舉蛋白質的四種組成結構並說明每一結構是由何種分子鍵結所形成? ----8 pt *primary, secondary, tri*
4. 請以水的基本性質列舉說明為何其對生物的生存是重要的。 ----6 pt *H₂O, 含有氫鍵, amino acid, phloem.*
5. 請詳述吉貝素 (gibberellin) 如何誘發植物種子的發芽過程。 ----8 pt *將種子從休眠期喚醒*
6. 請比較 bone 及 cartilage 此二結締組織之異同 ----6 pt *bone - 有血管、神經、淋巴管分佈其中，其間質有鈣鹽、膠蛋白。 cartilage - 無血管、神經、淋巴管分佈，間質中有纖維、膠原。*
7. 請以 two-solute model 詳細說明尿液於腎臟濃縮之機制 ----10 pt *一種抗體只有一個抗原接受器，一個抗體只能與一種抗原結合。*
8. 請說明免疫系統中 B 細胞如何進行 clonal selection 產生抗體 ----6 pt *淋巴結*
9. 何謂 sinoatrial node? atrioventricular node? 其對人體心臟之運作有何功能? ----8 pt *房室結*
10. 請說明男性 spermatogenesis 之荷爾蒙調控 ----5 pt *分泌睪固酮、雄性激素*

2. 單子葉 雙

平行脈

胚乳發達

維管束散生

維管束環列

維管束環列

雙子葉

網狀脈

胚乳多萎縮

維管束環列

維管束環列

維管束環列

H bond.