

[第一大題] (第一大題選擇題應作答於「答案卡」) (單選：每題 4 分，共 60 分)

- 下列關於細菌細胞壁的敘述，何者有誤？
(A) 所有細菌皆有細胞壁 (B) 功能是保持菌體形狀與其堅韌性
(C) 可抵抗外界物理性損害 (D) 由 NAG 與 MurNAc 交替連接組成骨架
- 關於革蘭氏染色步驟的順序，下列何者正確？ a. 固定, b. Safranin 染色, c. Crystal violet 染色, d. Iodine 染色, e. 脫色
(A) abcde (B) abced (C) adbce (D) acdeb
- 關於細菌的鞭毛，下列敘述何者有誤？
(A) 不是所有細菌都有鞭毛 (B) 與接合生殖有關
(C) 和運動性有關 (D) 主要由鞭毛蛋白所構成
- 下列哪一類抗生素的主要作用機制是抑制細菌蛋白質合成？
(A) Penicillin (B) Quinolone (C) Polymyxin (D) Tetracycline
- 細菌的 H 及 O 抗原指的是？
(A) Capsule & LPS (B) Flagella & LPS (C) Flagella & Capsule (D) 以上皆非
- 傳染病史上有名的傷寒瑪麗，是下列何種細菌的帶原者？
(A) *E. coli* (B) *N. gonorrhoeae* (C) *Shigella dysenteriae* (D) *Salmonella Typhi*
- 下列哪一種細菌的 Acid-fast stain 染色為 negative？
(A) *Nocardia* (B) *Mycobacterium* (C) *Listeria* (D) 以上皆是
- 下列和者為冰淇淋等低溫食品中常見的致病菌？
(A) *Erysipelothrix rhusiopathiae* (B) *Corynebacterium diphtheriae*
(C) *Neisseria gonorrhoeae* (D) *Listeria monocytogenes*
- 下列何者不是 *Mycobacterium tuberculosis* 的特性？
(A) 細胞壁富含 Mycolic acid (B) 可在巨噬細胞細胞質中繁殖及移動
(C) 屬於生長緩慢的分枝桿菌 (D) 感染會引起 delayed-type hypersensitivity
- Legionella pneumophila* 能在空調冷卻水塔生存的主要原因是？
(A) 耐水的氯處理 (B) 耐低溫 (C) 耐高溫 (D) 耐高鹽
- All of the following statements regarding Toll-like receptors are true **except**:
(A) The cytoplasmic signaling domain contains a variable number of leucine-rich repeat regions (LRRs).
(B) They exist as either transmembrane homodimers or heterodimers.
(C) The extracellular domain detects the microbial component.
(D) They sense molecules not found in or on human cells.

見背面

12. All of the following processes occur in mature B cells after antigen encounter **except**:
- (A) Affinity maturation
 - (B) Proliferation
 - (C) Isotype switching
 - (D) Somatic recombination.
13. Which of the following characteristics is common to both T-cell receptors and immunoglobulins?
- (A) Class switching enables a change in effector function.
 - (B) Somatic hypermutation changes the affinity of antigen-binding sites and contributes to further diversification.
 - (C) Somatic recombination of V, D, and J segments is responsible for the diversity of antigen-binding sites.
 - (D) The antigen receptor is composed of two identical heavy chains and two identical light chains.
14. Which of the following describes the sequence of events involved in processing of peptides that will be presented as antigen with MHC class I?
- (A) plasma membrane →TAP1/2 →proteasome →MHC class I →endoplasmic reticulum
 - (B) proteasome →TAP1/2 →MHC class I →endoplasmic reticulum →plasma membrane
 - (C) proteasome →TAP1/2 →endoplasmic reticulum →MHC class I →plasma membrane
 - (D) TAP1/2 →proteasome →MHC class I →endoplasmic reticulum →plasma membrane
15. Autoimmune diseases, which are classified on the basis of the effector mechanism that causes the symptoms, include all of the following types of hypersensitivity reaction **except**:
- (A) type I
 - (B) type II
 - (C) type III
 - (D) type IV

[第二大題] (問答題，20分)

甚麼是 Carbapenem-resistant Enterobacteriaceae? 重要性為何? 其抗藥機轉為何? 實驗室要如何偵測?

[第三大題] (問答題，20分)

Human Herpes Virus (HHV) is DNA virus family. During HHV infection cycle, three categories of viral genes are identified: Immediate Early (IE), Early (E), and Late (L) genes.

1. Please describe how the temporal regulation of gene expression during HHV infection can be achieved.
2. What do you think the functions of IE, E and L genes can be, respectively? (In other words, what kind of protein or enzyme are coded by IE, E and L genes?)

試題隨卷繳回