

慈 濟 大 學 9 5 學 年 度
研 究 所 碩 士 班 招 生 考 試 命 題 紙

科目：微生物學(生科所)

共2頁

Select the most suitable answer (共 18 分)(第 1, 2 題每題 3 分；第 3~8 題每題 2 分)

1. Which of the following processes would never contribute to genetic variation within a bacterial population? A) Meiosis B) Transduction C) Transformation D) Conjugation E) Mutation
2. Which of the following is descriptive of an R plasmid? A) Its transfer converts an F- cell into an F+ cell. B) It is usually transferred between bacteria by transduction. C) It is a good example of a composite transposon. D) It makes bacteria resistant to phage. E) It contains genes for antibiotic resistance and for sex pili.
3. Hand-food and mouth disease cause by A) coxasckie virus A16 B) type 3 poliovirus C) enterovirus type 71 D) group B coxasckie virus
4. Choose the incorrect description: A) Measles virus has a hemagglutinin but lacksneuraminidase activities B) Rubella virus, a member of the Togaviridase family, is transmitted by arthropods C) Humans are the only natural hosts for mumps virus D) Mumps virus and Measles virus belong to paramyxoviridae.
5. Which is the most important agents of respiratory infections of infants and young children A) Dengue virus B) human immunodeficiency virus C) respiratory syncytial viruses D) Togavirus
6. The two proteins, () and () are used to divide influenza viruses into three types. A) hemagglutinin and neurraminidase B) polymerase and envelope C)nucleocapsid and matrix protein D) membrane protein and matrix protein.
7. Which virus belong to Flaviviridae? A) Hepatitis C virus B) Hantavirus C) retrovirus D) Hepatitis A virus
8. Adult T-cell leukemia is caused by A) HTLV-II B) HTLV-I C) HIV-I D) HIV-II
9. True or False (共 10 分)
 - a. Parvovirus is a single stranded DNA virus.
 - b. Polyomavirus is a naked virus.
 - c. Site of caspid assembly of adenovirus is in cytoplasm
 - d. Poxviridae belongs to enveloped virus.
 - e. Baculoviridae belongs to single stranded RNA virus.
 - f. Papillomavirus is an enveloped virus.
 - g. Herpesvirus is naked virus.
 - h. Hepatitis B virus belongs to partially double stranded DNA virus.
 - i. Site of capsid assembly of papillomavirus is in cytoplasm.
 - j. Warts are caused by a DNA virus.
10. Please give a brief description of the following terms: (共 5 分)

慈濟大學 95 學年度
研究所碩士班招生考試命題紙

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- i) Plasmid (1 分)
ii) F factor (2 分)
iii) Generalized transduction (2 分)
11. Please define the following terms (共 12 分)
(1) Peptidoglycan
(2) Facultative anaerobe
(3) Endospore
(4) Chemoautotroph
12. Please give an example to describe the characteristics of latent infection of DNA virus. (5 分)
13. Please describe the possible oncogenesis mechanisms of retrovirus? (8 分)
14. Please define biofilm (3分), and describe the importance of biofilm to bacteria. (6分)
15. Bacteria, fungi, protists are all microorganisms. How do you classify them? Please compare these three groups. (9分)
16. Please describe how transposition differs from other mechanisms of genetic recombination? (4 分)
17. You obtained two mutant strains of *E. coli* from an microbiologist as follows:
Strain A: $\text{arg}^+ \text{trp}^-$ (can make arginine but not tryptophan)
Strain B: $\text{arg}^- \text{trp}^+$ (can make tryptophan but not arginine)
It is known that both strains were unable to grow on minimal medium (MM). Please design a simple experiment to prove that genetic recombination could occur in *E. coli*. (10 分)
18. How can a fungus be defined? (10 分)