

系所組別：醫學檢驗生物技術學系

考試科目：微生物與免疫

考試日期：0308，節次：3

※ 考生請注意：本試題 可 不可 使用計算機

1. Describe several possible mechanisms that confer antimicrobial resistance to bacteria (10%).
2. Describe several methods that can be used for molecular diagnosis of bacterial pathogens (10%).
3. Please describe what are toll-like receptors and their function (10%).
4. Please describe the mechanism to select hybridoma using HAT medium (10%).
5. Please describe the difference between class I and class II HLA antigens (10%).
6. There was a 1-year-old female who was admitted to the hospital in December because she developed fever, chest congestion, rhinorrhea, and a "barking" cough 3 days previously. There was no sputum production, nausea, or vomiting. On examination, her temperature was 38.4°C. She was in no acute distress and had audible obstructive upper airway sounds. Her throat was erythematous. On lung examination, upper airway sounds were prominent and there was no wheezing. The clinical impression was that she had croup. Specimens were sent for viral cultures. Ten days later a virus was identified from a nasopharyngeal specimen only after hemadsorption tests were done on the virus culture (15%). (a). What is the differential diagnosis, including only viral etiologies? (b). What are hemadsorption tests? Which families of viruses are frequently detected by this technique? Which virus is most likely to cause the above clinical symptoms? (c). What treatment and/or vaccines are available for this virus?
7. Viral infections are usually self-limiting. Sometimes, however, the virus persists for long periods of time in the host. Long-term virus-host interaction may have several forms (15%). (a). Please describe characteristics of persistent viral infection and latent viral infection. (b). Please give one example of each to discuss persistent viral infection and latent viral infection.

(背面仍有題目,請繼續作答)

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8. A student argues that it makes no sense to be concerned about coliform in drinking water because coliforms are harmless members of our normal intestinal flora. Explain why environmental agencies are so concerned about coliforms (10%).
9. An 18-year-old man fell on his knee while playing basketball. The knee was painful, but the overlying skin was unbroken. The knee was swollen and remained painful the next day, so he was taken to the local emergency department. Clear fluid was aspirated from the knee, and the physician prescribed symptomatic treatment. Two days later, the swelling returned, the pain increased, and erythema developed over the knee. Because the patient also felt systemically ill and had an oral temperature of 38.8°C, he returned to the emergency department. Aspiration of the knee yielded cloudy fluid, and cultures of the fluid and blood were positive for *Staphylococcus aureus*. (a). Name two possible sources of this organism (4%). (b). What toxins have been implicated in staphylococcal diseases (3%)? (c). What staphylococcal enzymes have been proposed as virulence factors (3%)?