

PRIMARY EXAMINATION

MICROBIOLOGY

Monday 29 November 2004

Time allowed: Two hours

INSTRUCTIONS TO CANDIDATES

This examination consists of three sections, with a choice of questions in each section. Each question is worth 15 marks, and the total number of marks for the examination is 75. You should allow 24 minutes of working time to answer each 15 marks question. All questions may be answered in the same answer book.

Section A. Answer only ONE question in this section.

1. Explain the principles of operation of biological indicators, and describe in detail how these indicators are used as an integral component of quality assurance programmes in evaluating autoclave performance in a dental practice. *(20 marks)*
2. List the factors which may predispose a patient to the development of acute necrotizing ulcerative gingivitis (ANUG), and describe the microbiological basis of our current understanding of this disease. Include in your answer the management protocols you may undertake for a patient (male, 32 years of age) presenting with ANUG in your dental practice. *(20 marks)*

Section B. Answer only TWO question in this section.

3. Describe the bacterial flora which may be present in a chronic infection in the root canal system of a cariously exposed molar tooth, and how the treatment which you prescribe for the condition addresses the bacterial infection. *(15 marks)*
4. Describe how the resting salivary pH can influence the oral microflora. What is the relevance of this to dental caries and oral fungal infections? *(15 marks)*
5. Explain why additional infection control precautions are required for patients with prion diseases, active tuberculosis, or SARS. *(15 marks)*

Section C. Answer only TWO question in this section.

6. With reference to the immune responses to infection, explain why patients who have received organ transplants or are undergoing cytotoxic chemotherapy for cancer treatment may be more prone to certain fungal, viral and bacterial oral infections. *(15 marks)*
7. Describe the events through which mutans streptococci are transmitted from one individual to another, and outline strategies which can reduce the likelihood of such transmission. *(15 marks)*
8. List the factors relating to the source, the recipient, and the sharps item that may influence the probability of transmission of hepatitis C to a dental assistant who has sustained a (contaminated) sharps injury whilst cleaning dental instruments used for oral surgery in a patients with known chronic hepatitis C infection. *(15 marks)*

Page 2 of 2.

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