



THE COLLEGES OF MEDICINE OF SOUTH AFRICA

Incorporated Association not for gain
Reg No 1955/000003/08

Examination for the Fellowship of the College of Pathologists of South Africa – Microbiology



Paper 1

27 July 2017

(3 hours)

All questions to be answered.

Please answer questions 1, 2 and 3 in one book

- 1 Discuss current and future options for the microbiological diagnosis of sexually transmitted infections that may overcome the limitations of the syndromic management approach. [20]
- 2 Write notes on the following
 - a) Define the term conjugate vaccine and give an example. State the advantages of conjugate vaccines compared to polysaccharide vaccines and explain the immunological mechanism for this superiority. (10)
 - b) State the mechanisms of action and discuss the different indications and contra-indications for use of the following antifungal agents: amphotericin B, voriconazole and caspofungin. (10)[20]
- 3 Briefly discuss the following
 - a) Compare and contrast 16S rDNA sequencing and MALDI-TOF for the identification of bacteria in a diagnostic laboratory. (10)
 - b) Outline the principles for validation of a new antimicrobial susceptibility testing system. (10)[20]

Please answer questions 4 and 5 in one book

- 4 Write short notes on the following
 - a) Explain the difference between breakpoints and epidemiological cut-offs. (7)
 - b) Briefly describe important causes of fulminant hepatitis. (5)
 - c) Maternal immunisation, giving at least 4 examples of current or potential vaccines used for this. (8)[20]
- 5 Discuss the following
 - a) Post exposure prophylaxis (PEP) against HIV and HBV infection in health care workers. (10)
 - b) The application and limitations of serological assays used for the diagnosis of viral infections. (10)[20]



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Paper 2

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(3 hours)

All questions to be answered.

Please answer questions 1, 2 and 3 in one book

- 1 Discuss peritoneal dialysis infections under the following headings: pathogenesis, laboratory diagnosis, treatment and prevention. [20]
- 2
 - a) Describe the parasite lifecycle and laboratory diagnosis of urinary bilharzia. (10)
 - b) Describe the pathogenesis of botulism. (10) [20]
- 3 The head of your neonatal intensive care unit is concerned that 3 neonates were confirmed to have candidaemia and that this constitutes an outbreak. Discuss how you would carry out an investigation and control measures of this “outbreak”. [20]

Please answer questions 4 and 5 in one book

- 4
 - a) Write short notes on the roles and responsibilities of a microbiologist in the implementation of an effective laboratory quality management system. (10)
 - b) Write short notes on bacterial resistance to disinfectants. (10) [20]
- 5 Briefly discuss the following
 - a) Sources of uncertainty of measurement in the microbiology laboratory. (10)
 - b) The reasons for discordant genotypic and phenotypic results for rifampicin and fluoroquinolone resistance in *Mycobacterium tuberculosis*. (10) [20]