



UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE

ALLIED HEALTH SCIENCES DEGREE PROGRAMME

SECOND BPHARM PART I EXAMINATION – JULY 2013

PH 2153: PHARMACEUTICAL MICROBIOLOGY (SEQ)

TIME: 9.00 a.m. – 11.00 a.m.

INSTRUCTIONS

- Answer all questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.

1.

1.1 List **six** main differences between prokaryotes and eukaryotes. (30 marks)

1.2 Classify bacteria according to morphological characteristics giving examples. (30 marks)

1.3 State **four** different modes of transmission of viral infections with **one** example for each.

(30 marks)

1.4 Name **three** live attenuated viral vaccines.

(10 marks)

2.

2.1 A patient was admitted to a medical ward due to diarrhoea for 2 days.

2.1.1 Name **three** parasites which can cause above case scenario. (10 marks)

2.1.2 Name the infective stage of each parasite mentioned in 2.1.1 (10 marks)

2.1.3 Describe the mode of transmission of **one** parasite mentioned in 2.1.1 (10 marks)

2.2 A patient was admitted to a medical ward due to fever with chills and rigors for 10 days.

2.2.1 Name **three** parasites which can cause above case scenario. (10 marks)

2.2.2 Name the infective stage of each parasite mentioned in 2.2.1 (10 marks)

2.2.3 Describe the mode of transmission of **one** parasite mentioned in 2.2.1 (10 marks)

2.3 A child from a slum area presented to a doctor with repeated attacks of peri-anal itching due to a parasitic disease.

2.3.1 Name **one** parasite which can cause above case scenario. (10 marks)

2.3.2 Name the infective stage and mode of transmission of the above parasite. (10 marks)

2.3.3 Discuss why this child is getting repeated infection due to above parasite? (20 marks)

- 3.
- 3.1
- 3.1.1 Explain different methods of isolation of pure cultures. (10 marks)
- 3.1.2 Write different types of staining techniques. (10 marks)
- 3.2
- 3.2.1 Differentiate between Gram positive and Gram negative staining. (10 marks)
- 3.2.2 Write a note on biochemical reactions involved in the identification of bacteria. (10 marks)
- 3.3 Write notes on
- 3.3.1 Streak plate method (05 marks)
- 3.3.2 Disc diffusion technique (05 marks)
- 3.3.3 Bactericidal (05 marks)
- 3.3.4 Bacteriostatic (05 marks)
- 3.4
- 3.4.1 Classify disinfectants with examples. (10 marks)
- 3.4.2 List out the chemical agents used for sterilization. (10 marks)
- 3.4.3 Classify different sterilization techniques. (10 marks)
- 3.4.4 Write the mechanism of moist heat sterilization. (10 marks)
- 4.
- 4.1 Pharmaceuticals are deemed to be protected from the microorganisms. There are several when protecting pharmaceuticals factors that we should consider from microorganisms.
- 4.1.1 List the factors that would affect the spoilage of pharmaceuticals. (08 marks)
- 4.1.2 Discuss briefly any **three** of the above factors. (30 marks)
- 4.2 Sterilization is the method to eliminate microorganisms from a product. However it essential to assure the sterility of the final product before releasing it to the market.
- 4.2.1 What methods can be used for this purpose as per European Pharmacopoeia? (06 marks)
- 4.2.2 What is the significance of control tests when carrying out the sterility testing? (10 marks)
- 4.2.3 If the sterilized pharmaceutical contains any sort of antimicrobial agent, what precautions do you take before carrying out the sterility test? (06 marks)
- 4.2.4 Explain in brief how you would carry out such precautions. (20 marks)
- 4.3 A new semisynthetic β -Lactam antibacterial agent has been synthesized. This antibacterial agent is a derivative of Cephalosporin. Construct an appropriate production flow chart to indicate the pathway of producing the precursor for this semisynthetic antibacterial agent. (20 marks)