



KENYATTA UNIVERSITY

EXAMINATION FOR THE DEGREE OF BACHELOR OF ...

PPA 410 PHARMACEUTICS III

2ND SEMESTER 2020/2021

TIME: 2 HOURS

INSTRUCTIONS:

1. *This question paper has three sections: SECTION A, B, C.*
2. *Answer all questions.*
3. *Answer questions in each section in a separate answer booklet.*

SECTION A: [40MARKS]

1. A pharmacist sampled some sterile finished products in a distribution pharmacy. She noticed after doing sterility tests that a batch of a product from company A failed the test.
 - a) Explain the actions that she should take based on her findings (2 marks)
 - b) Describe the possible consequences to the patients if she takes no action (3 marks)
 - c) Summarize the importance of the sterilization process in the pharmaceutical industry. (7 marks)
2.
 - a) Discuss five factors that affect the steam sterilization process. (5 marks)
 - b) Distinguish between filtration and radiation methods of sterilization. (5 marks)
3. Explain five factors that affect the choice of disinfectants and antiseptics used in a hospital. (5 marks).
4. Describe any three organic and any three inorganic antiseptics and disinfectants. (6 marks)
5. Describe two ways of performing disinfectants testing. (4 marks)
6. Differentiate between the D-value and the Z-value in bacterial death kinetics (3 marks)

INVOLVEMENT IN ANY EXAMINATION IRREGULARITY SHALL LEAD TO DISCONTINUATION

SECTION B: [40MARKS]

1. Define the following terms:
 - a) Biopharmaceutics (1mark)
 - b) Bioequivalence (1mark)
 - c) Relative bioavailability (1mark)
2. Discuss the mechanism of:
 - a) Disintegration (2marks)
 - b) Dissolution (2marks)
3. Explain five factors that affect solubility of a drug (5marks)
4.
 - a) Describe five physicochemical factors affecting drug dissolution. (5marks)
 - b) Explain two pharmaceutical formulation factors affecting drug dissolution. (2marks)
5. Discuss two theories of:
 - a) Disintegration (4marks)
 - b) Dissolution (4marks)
6. Describe one sink method and one non-sink method of dissolution testing. (4marks)
7. Describe five factors that affect drug bioavailability. (5 marks)
8. Explain the rationale behind the following statements:
 - a) Patients taking oral tablets should take the medicine with at least a full glass of water. (1 mark)
 - b) Most drugs are designed as weakly basic formulations. (1mark)
 - c) Formulations containing theophylline should be taken on an empty stomach. (2marks)

SECTION C: [40MARKS]

1. Explain five factors that affect transit time of drugs taken orally. (5marks)
2.
 - a) Using a diagram, illustrate the anatomy of the gastrointestinal tract. (3marks)
 - b) For each of the major anatomical site in the gastrointestinal tract in 2a), indicate the PH and transit time of a drug under fed state. (3marks)
Small letter
3. Outline two advantages of buccal and sublingual tablets. (2marks)
4. Explain the seven rights of medication administration. (4marks)
5. Discuss five factors to consider when choosing the route of drug administration. (5marks)
6.
 - a) Using a diagram, explain first pass effect. (3marks)
 - b) Describe the blood supply to the rectum and explain how this relates to first pass metabolism of drugs given as suppositories. (4marks)
7. Using a diagram, illustrate the angles of injection of drugs given parenterally. (4marks)
8. Explain the difference between a peripheral line and central line used in parenteral administration of drugs. (2marks)
9. Describe the circumstances under which the following routes of drug administration are used:
 - a) Intrathecal (1mark)
 - b) Intraperitoneal (1mark)
 - c) Intravenous (1mark)
 - d) Intra-arterial (1mark)
10. Explain how hypothermia can be induced by infusion of intravenous fluids. (1mark)