
CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE IN BIOMEDICAL TECHNOLOGY**

BMET 337: DRUG DELIVERY SYSTEMS

STREAMS: BSC BIOMEDICAL TECHNOLOGY Y4S2

TIME: 2 HOURS

**DAY/DATE: TUESDAY 16/04/2019
A.M.**

8.30 A.M. - 10.30

INSTRUCTIONS:

- **Answer question one and any other two questions**
- **Do not write on the question paper**

QUESTION ONE (30 MARKS)

(a) Explain 5 features that make viruses usable as drug delivery systems. (5 marks)

- (b) Explain the concept of 'extravasation' in IV infusions. (5 marks)
- (c) Differentiate between water for injection, and sterile water for injection. (5 marks)
- (d) Describe the uptake of a drug in the parenchyma cells of the brain. (5 marks)
- (e) With examples, describe tropism in virus-like proteins. (5 marks)
- (f) Describe the components of the iontophoretic drug delivery system. (5 marks)

QUESTION TWO (20 MARKS)

- (a) With examples, discuss the application of liposomes as drug carriers. (10 marks)
- (b) Discuss the problems associated with gene therapy in drug delivery processes. (10 marks)

QUESTION THREE (20 MARKS)

(a) Discuss the mechanism of drug resistance in bacteria. (10 marks)

(b) Describe the drawbacks of using retroviral integration of vectors for ex vivo gene delivery to cultured cells. (10 marks)

QUESTION FOUR (20 MARKS)

(a) Discuss the factors that affect the drug delivery using iontophoretic methods. (10 marks)

(b) Differentiate between osmotic and biochemical blood brain barrier disruption. (10 marks)
