

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BMET 337: DRUG DELIVERY SYSTEMS

STREAMS: BMET

TIME: 2 HOURS

DAY/DATE: TUESDAY 14/04/2020

11.30 AM – 1.30 PM

INSTRUCTIONS:

Answer question one and any other two questions

Question 1 (Compulsory) (30 marks)

- a) Outline 4 advantages of using liposomes in delivery of drugs. (4 Marks)
- b) Highlight 4 factors that limit drug diffusion into the brain. (4 Marks)
- c) Explain 3 parts of Plasmid-based gene medicine. (3 Marks)
- d) Highlight 4 characteristics that make adenovirus a suitable viral vector. (4 Marks)
- e) Describe the disadvantages of transdermal drug delivery over other routes of drug delivery. (6 Marks)
- f) State 4 demerits associated with oral drug delivery. (4 Marks)
- g) Outline 5 formulation of microparticulates for intraocular drug delivery. (5 Marks)

Question 2 (20 marks)

- a) Describe the use of liposomes, microparticulates and nanoparticulates in intraocular drug delivery. (10 Marks)
- b) Describe how bioadhesive gels enhance the vaginal absorption of drugs and various bioadhesive polymers under investigation. (10 marks)

Question 3 (20 marks)

- a) Describe the various approaches to cancer gene therapy presently being investigated. (10 Marks)
- b) Explain how the physicochemical properties of a drug molecule affect CNS drug delivery. (10 marks)

Question 4 (20 marks)

- a) Using an appropriate diagram, outline the principles of iontophoresis. (10 marks)
 - b) Compare and contrast three principal categories of aerosol generator employed in inhalation therapy under the following sub-headings: Device, Mechanism, Advantages, Disadvantages and Improvements (10 marks)
-