



TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BMFT/BTMB

ABT4213 : BIOCHEMICAL TECHNIQUES AND INSTRUMENTATION 1 P2
SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Pick Date Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

a) Describe SDS detergent and its application in electrophoresis (4 marks)

b) Fill in the functional groups for ion exchangers below (4 marks)

Ion exchanger

Functional group

i) DEAE Sephadex A-50

ii) QAE Sephadex A-25

iii) CM Sephadex C-50

iv) SP Sephadex C-25

c) Describe three forms of column packing support material for HPLC (5 marks)

d) Describe monochromators and their role in spectrophotometer. (4 marks)

- e) Differentiate between the following
- i) Hydrophobic interaction and reverse-phase chromatography (5 marks)
- ii) Frictional coefficient and Electrophoretic mobility (4 marks)
- f) Explain the law of mass action (4 marks)

Question TWO

- (a) Explain the principle of gel filtration chromatography (8mks)
- (b) Discuss gel filtration under the following topics: (12mks)
- (i) Column packing
 - (ii) Sample Preparation
 - (iii) Elution
 - (iv) Column regeneration

Question THREE

- a) Describe agarose gel electrophoresis (10 marks)
- b) Describe the UV- VIS-absorption detectors (10 marks)

Question FOUR

- (a) Describe the principle of polyacrylamide gel electrophoresis (10marks)
- (b) Discuss sample preparation of 2 dimensional gel electrophoresis (10marks)

Question FIVE

- a) Describe the measurement of pH (10 marks)
- b) Discuss the Bradford protein assay (10 marks)