

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE BIOMEDICAL SCIENCE**

BMED 420: RECOMBINANT DNA TECHNIQUES

STREAMS: BSC (BIOMED)

TIME: 2 HOURS

DAY/DATE: MONDAY 03/12/2018

2.30 PM – 4.30 PM

INSTRUCTIONS:

Answer Question One and any other Two Questions

- (a) Describe in brief 3 methods of genetic recombination. [3 marks]
- (b) Describe the 'DNA' fingerprinting' [2 marks]
- (c) Using sketches, differentiate between DNA and RNA helices. [4 marks]
- (d) Briefly describe DNA labelling process. [3 marks]
- (e) Briefly discuss factors involved in organic extraction and enzymatic digestion for the removal of contaminants following DNA purification before gene sequencing. [5 marks]
- (f) Human genome studies have indicated possibility of 'transplanting pig heart in humans.' Briefly discuss the statement. [4 marks]
- (g) Giving Dolly the sheep' as an example, discuss a simple procedure for genetic manipulation invitro. [6 marks]
- (h) In brief, describe how gene cloning technology may be abused by scientists. [3 marks]

QUESTION TWO (20 MARKS)

- (a) Giving examples of products involved, discuss industrial applications of recombinant DNA technology. [11 marks]
- (b) Isolation of DNA involves three major steps. Discuss. [9 marks]

Question Three (20 MARKS)

- (a) Describe the procedure for agarose gel electrophoresis for separation of DNA. [8 marks]
- (b) Discuss four limitations of gene therapy. [12 marks]

QUESTION FOUR (20 MARKS)

- (a) Discuss characteristics of different types of Blot Membranes. [12 marks]
 - (b) Discuss two ways through which separation of plasmid DNA may be achieved. [8 marks]
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