



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

*Faculty of Applied & Health Sciences*

DEPARTMENT OF PURE AND APPLIED SCIENCES

**DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY (DSLTT 10J)**

AAB 2216: BIOMEDICAL/CELL BIOLOGY

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2011**

**TIME: 3 HOURS**

### **Instructions to Candidates:**

You should have the following for this examination

- *Answer booklet*

This paper consists of **TWO** sections **A & B**

Answer **ALL** questions in section A and **THREE** questions in section B.

Each question in section **A** carries **4** marks while those in section **B** carry **15** marks each

This paper consist of **THREE** printed pages

## SECTION A (Answer all questions)

### Question One

- a) List **THREE** types of muscle cells (3 marks)
- b) Draw the structure of the following compounds
- (i) Adenine (2 marks)
  - (ii) Cytosine (2 marks)
- c) Complete the following compounds:
- (i) dGMP (2 marks)
  - (ii) dCMP (2 marks)
- d) explain how the following factors affect fixation;
- (i) Concentration of a fixative (2 marks)
  - (ii) Temperature (2 marks)
- e) explain the structures preserved by the following fixatives;
- (i) Zenker's solution (2 marks)
  - (ii) Bouin's solution (2 marks)
- f) State **THREE** necessities for proper sectioning (3 marks)
- g) Explain the structure of a cell membrane (4 marks)

## SECTION B

### Question Two (15 marks)

- a) Explain the regulation of water concentration in the blood stream (8 marks)
- b) Describe the structure of Deoxyribonucleic acid (7 marks)

### Question Three (15 marks)

- a) Explain the structure of the following epithelial tissues;
- (i) Squamous epithelium (7 marks)
  - (ii) Stratified epithelium (8 marks)

### Question Four (15 marks)

- a) Explain the mechanism action of alcohols fixatives (8 marks)
- b) Explain the technique of mounting tissue sections with Histo-clear and Histomount (7 marks)

**Question Five (15 marks)**

- a) Explain how nervous system control homeostasis (8 marks)
- b) Describe characteristics of a good fixative (7 marks)