



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF PURE AND HEALTH SCIENCE

UNIVERSITY EXAMINATION FOR:

ANALITICAL CHEMISTRY

AAB 4101: FUNDAMENTALS OF BIOLOGY

END OF SEMESTER EXAMINATION

SERIES:DECEMBER2016

TIME:2HOURS

DATE:Pick DateDec2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

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

Do not write on the question paper.

Answer question ONE(compulsory) and any other TWO questions

AAB 4101: FUNDAMENTALS OF BIOLOGY-B

QUESTION ONE

- a) (i) State any two parts of optical microscope used for magnification. 2mks
- (ii) Describe the working principles of Fluorescent microscope 8marks
- (iii) State the limitations of using fluorescence microscope 5marks

- b) (i) Explain the regulation of cell cycles 6marks
- (ii) State the common lipids found in cell membranes 3 marks
- c)(i) Describe the characteristics of cancerous cells which no longer respond to cell cycles 6marks

QUESTION TWO

- a)(i) Describe the use of electron microscope in industries 5marks
- ii) Identify results when chemical analysis of the ribosomes is done correctly 5marks
- b)(i) Define the term plastids 1 mark
- (ii) Discuss water photolysis during photosynthesis 8 marks
- (ii) Define protein facilitated diffusion 1 mark

QUESTION THREE

a)(i) Briefly discuss the functions of Integrins and immunoglobulin cell junctions
6marks

(ii) Describe the Calvin cycle 5 marks

b)(i) Explain reactions in light dependent photosynthesis 7marks

(ii) Define the Z=scheme process 2 marks

QUESTION FOUR

a)(i) Describe carbon fixation in C₄ plants in hot weather 7 marks

(ii) State the structures in Cyanobacteria that release carbon dioxide or concentrate carbon
around the RuBisCo 3marks

b)(i) State the advantages of using scanning electron microscope 2 marks

(ii) Explain how specimen can be embedded before use in an electron microscope 4 marks

(iii) Explain the structure and function of nuclear membrane 4 marks

QUESTION FIVE

a)(i) Describe how marine chemical toxins may be moved within a food web to reach human beings 8mks

(ii) Define the term global warming and explain the causes 5mks

b)(i) Identify reactions during the following stages of cell cycle in mitosis 4 mks

(ii) Differentiate between cytoplasm and cytosol 2mks

(iii) What is the importance of oil immersion in microscopy? 1mk