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University Examinations 2022/2023

SPECIAL/SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY, BACHELOR OF SCIENCE IN BIOTECHNOLOGY AND BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT

SBT 3101: CELLULAR BASIS OF LIFE

DATE: AUGUST 2023

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) (i) Critique the spontaneous theory of life's origin (3 marks)
- (ii) Highlight the main weaknesses of the theory of special creation (3 marks)
- b) (i) State Three difference between diffusion and Osmosis (3 marks)
- (ii) Describe any three biological properties of the cytoplasm (3 marks)
- c) Explain why lysosomes are considered the cell's demolition area (3 marks)
- d) Summarize three characteristics of metaphase (3 marks)
- e) Distinguish between the following terms
 - (i) Hypotonic and isotonic (2 marks)
 - (ii) Endocytosis and exocytosis (2 marks)
 - (iii) Prokaryote and eukaryote (2 marks)
- f) Describe briefly the repetitive structures of the following organelles
 - (i) Mitochondrion (3 marks)



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Page 1

(ii) Cell nucleus (3 marks)

QUESTION TWO (20 MARKS)

Trace the history of development of the microscope (20 marks)

QUESTION THREE (20 MARKS)

Discuss the particulate theory of the origin of life (20 marks)

QUESTION FOUR (20 MARKS)

Describe in detail mitotic cell division (20 marks)

