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OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2020 /2021 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

COURSE CODE: **ZOO 100E**

COURSE TITLE: **CELL BIOLOGY**

DATE: **15TH FEBRUARY 2021** **TIME: 2.00 P.M -5.00 P.M**

INSTRUCTIONS TO CANDIDATES

- **SEE INSIDE**

THIS PAPER CONSISTS OF 3 PRINTED PAGES **PLEASE TURN OVER**

REGULAR – MAIN EXAM

ZOO 100E: CELL BIOLOGY

STREAM: BED (SCIENCE) **DURATION: 3 Hours**

INSTRUCTIONS TO CANDIDATES

i. *Answer **ALL** questions from section A and any **THREE** from section B.*

ii. *Diagrams should be used whenever they serve to illustrate the answer.*

iii. *Do not write on the question paper.*

SECTION A (24 MARKS)

Question One

a) Explain how a student can focus on a specimen under a microscope. (3 Marks)

b) Outline four main features of cell theory. (2 Marks)

c) Give an account of the three forms of passive transport. (3 Marks)

d) Describe the structural composition of the cell membrane. (4 Marks)

Question Two

a) Distinguish between rough and smooth endoplasmic reticulum. (2 Marks)

b) Describe the events that occur during metaphase of mitosis of a plant cell. (3 Marks)

c) Draw a well labeled diagram of a prokaryotic cell using a bacterial cell as an example. (4 Marks)

d) State any three differences between an animal and a plant cell. (3 Marks)

SECTION B (36 MARKS)

Question Three

a) Define the term cell cycle. (2 Marks)

b) Discuss the events that occur during the interphase. (6 Marks)

c) Tabulate four differences between mitosis and meiosis. (4 Marks)

Question Four

a). Define the term osmosis. (2 Marks)

b). Explain five roles of osmosis in plants (10 Marks)

Question Five

a). Explain how glucose enters the human biceps muscle cell after digestion. (4 Marks)

b). Differentiate between resolution and magnification of a microscope (3 Marks)

c). Work out how you would prepare 1% sodium chloride solution for use in physiological experiment given the following atomic masses (sodium=23, chlorine=35.5) (5 Marks)

Question Six

a). Outline the process of cell fractionation. (4 Marks)

b). Eukaryotes are believed to have arose from Prokaryotes. Explain (4 Marks)

c). Explain how diffusion gradient affect the rate of diffusion. (4 Marks)

Question Seven

a) State the importance of the following process during preparation of slides for view under a light microscope.
   i) Staining (3 Marks)
   ii) Fixation (3 Marks)

b) Describe the gastrulation process (6 Marks)

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