CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN BOTANY

BOTA 405: PLANT EVOLUTION

STREAMS: BSC (BOTA) Y4S2 **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 15/04/2020 **2.30 P.M. – 4.30 P.M.**

INSTRUCTIONS: Answer ALL questions in section A and any other TWO in section B

SECTION A (30 MARKS)

1. List the basic principles of evolution theory that explains why life evolves [5 marks]
2. State five factors that provide polyploids with evolutionary advantages [5 marks]
3. Outline the problems associated with plant fossils [5 marks]
4. Discuss the hypotheses of alternation of generation in plants [5 marks]
5. Explain how plant chemical compounds improve environmental adaptability [5 marks]
6. Discuss agamospermyapomixis in plants [5 marks]

SECTION B (40 MARKS)

7. Discuss plant breeding systems that promote out-crossing [20 marks]
8. Discuss the evolution process of the following plant tissues:
   (a) Vascular tissue [10 marks]
   (b) Leaves [10 marks]
9. (a) Discuss endosymbiosis [10 marks]
   (b) Discuss the evidence that prokaryotes gave rise to the first eukaryotic cells [10 marks]
