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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2020/2021 ACADEMIC YEAR THREE**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF SCHOOL OF PURE AND APPLIED SCIENCES**

**FOR THE DEGREE OF BACHELOR OF EDUCATION**

**COURSE CODE: BOT 300**

**COURSE TITLE: PLANT PHYSIOLOGY AND BIOCHEMISTRY**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 06/10/2021 TIME: 09.00-11.00 AM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of TWO (2) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. Define the following:
2. Plant physiology (1 mark)
3. Plant biochemistry (1 mark)
4. Photosynthesis (1 mark)
5. Primary metabolites (1 mark)
6. Respiration (1 mark)
7. Differentiate between the following
8. Primary and Secondary metabolites (2marks)
9. the structural and storage polysaccharides (2marks)
10. i) Define Nitrogen Fixation (1mark)

ii) State the roles of nitrogen in plant (2marks)

 iii) Using a suitable illustration explain the process of Nitrogen Fixation. (5marks)

1. i) State and Discuss FIVE main factors that affects Enzyme Activity. (5marks)

ii) Using a suitable illustration describe the Mechanism of Enzymes Action**.** (5marks)

1. State and briefly Explain how plants responds to a wide variety of stimuli. (5marks)

**QUESTION TWO**

1. Explain electron transport and photophosphorylation reactions in photosynthesis. (10marks).
2. Differentiate C3 and C4 pathways of photosynthesis. (10 marks)

**QUESTION THREE**

Outline the structure, functions and biosynthesis of carbohydrates, lipids and proteins. (20marks)

**QUESTION FOUR**

Describe mechanisms of assimilation of carbon, and both organic and inorganic nitrogen in plants. (20marks)

**QUESTION FIVE**

1. Describe in details the techniques used in the study of plant and animal tissues and their importance. (10marks)
2. Discuss the catabolic process in plants. (10 marks)