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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2018/2019 ACADEMIC YEAR THREE**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**

**FOR THE DEGREE OF BACHELOR OF EDUCATION**

**COURSE CODE: BOT 300E**

**COURSE TITLE: PLANT PHYSIOLOGY AND BIOCHEMISTRY**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 04/02/2020 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. Distinguish the following: **[5 marks]**
2. Simple and Complex Tissue:
3. Enzyme competitive and non competitive inhibitors
4. Enzymes and coenzymes
5. **A**poenzyme and holoenzyme
6. Primary and Secondary metabolites
7. i) Define Nitrogen Fixation **[1 mark]**

ii) Using a suitable illustration explain the process of Nitrogen Fixation. **[5 marks]**

iii) State the roles of nitrogen in plant **[4 marks]**

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

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

1. EXPAIN the difference between the structural and storage polysaccharides **[5 marks]**
2. State and briefly Explain how plants responds to a wide variety of stimuli. **[5 marks]**

**QUESTION TWO**

1. Explain electron transport and photophosphorylation reactions in photosynthesis **[10 marks]**
2. Differentiate C3 and C4 pathways of photosynthesis **[10 marks]**

**QUESTION THREE**

Outline the structure, functions and biosynthesis of carbohydrates, lipids and proteins. **[20 marks]**

**QUESTION FOUR**

Describe mechanisms of assimilation of carbon, and both organic and inorganic nitrogen in plants. **[20 marks]**

**QUESTION FIVE**

Describe in details the techniques used in the study of plant and animal tissues and their importance **[20 marks]**