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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

FOURTH YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE

COURSE CODE: SAB 430

COURSE TITLE: SEED SCIENCE AND TECHNOLOGY

DATE: 10TH JANUARY 2022

TIME: 2 – 4 PM

INSTRUCTIONS TO CANDIDATES

Answer Question One (COMPULSORY) and Any other TWO (2) Questions

TIME: 2 Hours

QUESTION ONE

- a. Describe FOUR agronomic principles of seed technology (8 MKS)
- b. Describe the following stages of seed development;
 - i. Embryo development (4 MKS)
 - ii. Growth phase (4 MKS)
 - iii. Seed Germination (4 MKS)
- c. If 350 kg of peas at 28 percent moisture content are dried to 14 percent moisture content, calculate the weight of the dried peas? (4 MKS)
- d. List the functions of the following in seed formation and development:
 - i. Sepals (1 MKS)
 - ii. Filament (1 MKS)
- e. Describe the laboratory procedure for seed germination percentage testing of;
 - i. Large seeds (2 MKS)
 - ii. Small seeds (2 MKS)

QUESTION TWO

- a. Describe the Tetrazolium test of seed purity testing (10 MKS)
- b. Outline the ten steps of glycolysis during seed biochemistry (10 MKS)

QUESTION THREE

- a. Outline FOUR factors that determine the choice of seed drying method. (8 MKS)
- b. Describe how the following factors affect seed germination:
 - i. Oxygen (2 MKS)
 - ii. Substrate (2 MKS)
 - iii. pH (2 MKS)
 - iv. Soils
 - v. Texture (2 MKS)
 - vi. Compaction (2 MKS)
 - vii. Light (2 MKS)

QUESTION FOUR

- a. Outline the following methods of breaking seed dormancy;
 - i. Scarification (3 MKS)
 - ii. Temperature Treatments (3 MKS)
 - iii. Light Treatments (1 MKS)
 - iv. Treatments with growth regulators & other Chemicals (3 MKS)
- b. Outline any FIVE parameters used in seed quality analysis (10 MKS)

QUESTION FIVE

You are given the following seed lots in the laboratory for analysis (Wheat and Bean seeds). Describe the germination percentage analysis procedure you will use for this analysis. Use an appropriate example to derive the percentage germination results.

- i. Wheat seeds (10 MKS)
- ii. Bean seeds (10 MKS)