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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017 ACADEMIC YEAR

THIRD YEAR 2ND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREE OF BACHELOR OF AGRICULTURE EDUCATION &
EXTENSION & BACHELOR OF EDUCATION SCIENCE

COURSE CODE: SAB 340

COURSE TITLE: AGRICULTURAL PROCESSING AND FARM
STRUCTURES

DATE: 22ND SEPT.2017

TIME: 3 PM – 5 PM

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO.

TIME: 2 Hours

This paper consists of 3 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

QUESTION ONE (30 Marks)

- a) Explain briefly any four climatic factors that you would consider while designing farm structures (8 Marks)
- b) Name four types of fences (4 Marks)
- c) Differentiate between the following terms:
- (i) Relative humidity (2 Marks)
 - (ii) Specific humidity (2 Marks)
- d) Give four requirements that the equipment used for cleaning harvested grain must have (4 Marks)
- e) List three grain properties that that the cleaning equipment use (3 Marks)
- f) Describe three defects in wood as a building material (3 Marks)
- g) What are the four advantages of using for construction of farm structures? (4 Marks)

QUESTION TWO (20 Marks)

- a) Explain three drawbacks that are experienced in processing (6 Marks)
- b) Use neat diagrams to show the following dehydration processes:
- (i) Forced Air Dehydration (7 Marks)
 - (ii) Oil-burning Dehydration (7 Marks)

QUESTION THREE (20 Marks)

- a) Give any three factors considered in selecting building materials. (3 Marks)
- b) State three types of stone used in construction. (3 Marks)
- c) Give two properties of a good concrete mix. (2 Marks)
- d) Use the data provided below to:
- (i) Calculate the amount of cement, sand and stone needed to construct a rectangular concrete slab which is 7.5m long, 4.2m wide, and 80mm thick. (10 Marks)

- (ii) Determine the size of stone to be used in the mix in (d)(i) above. (2 Marks)

Data:

- Shrinkage in volume is 30%
- Wasted material is 5%
- One 50kg bag of cement is equivalent to 37 litres of water
- Density of sand is 1.45 tons/m³
- Density of stone is 1.60 tons/m³
- Use a nominal mix of 1:3:6

QUESTION FOUR (20 Marks)

- (a) Describe four factors that must be considered in selecting a drying system (4 Marks)
- (b) (i) What is thin-bed drying? (1 Mark)
- (ii) Describe briefly the three main types of thin-bed drying (9 Marks)
- (c) Briefly explain three major problems that are encountered while drying grains (6 Marks)

QUESTION FIVE (20 Marks)

- a) What are the four requirements for safe storage of grains? (4 Marks)
- b) Estimation of grain loss in store was done using the Count-and- Weigh method.
- (i) Outline its procedure (6 Marks)
- (ii) Give two disadvantages of using this method (2 Marks)
- c) A baseline volume/weight for maize in a farm store was determined to be 1.44 kg per 2 litres at a moisture content of 13.5%. Five months later, a sample was taken and had a volume/weight of 1.27 kg per 2 litres at a moisture content of 13%.

Determine the dry weight loss using the Standard Volume/Weight method

(8 Marks)