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# KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS  
2017/2018 ACADEMIC YEAR

THIRD & FOURTH YEAR SECOND SEMESTER  
SPECIAL/SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF B.SC (EDS, BEE & BAB)

**COURSE CODE:** SAB 340/416

**COURSE TITLE:** AGRICULTURAL PROCESSING & FARM STRUCTURES

**DATE:** 12<sup>TH</sup> OCTOBER 2018

**TIME:** 3 – 5 PM

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**INSTRUCTIONS TO CANDIDATES**

- Answer **QUESTION ONE** (Compulsory) and any other two (2) Questions.
- Indicate **answered questions** on the front cover.
- Start every question on a new page and make sure question's number is written on each page.

This paper consists of 3 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

**QUESTION ONE (30 Marks)**

- a) State any FIVE ways in which losses in storage can occur **(5 Marks)**
- b) Under the Building Code By-laws, state any THREE operations that are deemed to be an erection of a building **(3 Marks)**
- c) State any THREE advantages of a solar dryer **(6 Marks)**
- d) Explain briefly any four climatic factors that you would consider while designing farm structures **(5 Marks)**
- e) State and describe drawbacks related to tradition drying method **(5 Marks)**
- f) State and explain THREE reasons for primary processing of agricultural products **(6 Marks)**

**QUESTION TWO (20 Marks)**

Under the concept of agricultural products drying, state expressions of Wet and dry Basis moisture contents explaining each term in each expression **(20 Marks)**

**QUESTION THREE (20 Marks)**

- (a) Discuss briefly concrete masonry in functional planning and layouts of farm structures **(10 Marks)**
- (b) Outline and briefly discuss FIVE roof shapes in farm structures **(10 Marks)**

**QUESTION FOUR (20 Marks)**

Use TOPSIS technique to select the best material from the information given below:

Table 1: Ratio scale

Performance of alternatives	Importance of requirements/criteria
5= Excellent, 4= Good, 3=satisfying, 2=Sufficient, 1=insufficient/poor	3=Major preference, 2=average preference, 1=Slight preference, 0=No preference

Table 2: Weighted matrix W (importance of requirements/criteria)

Criteria	Cost	Aesthetics	Durability	Energy

				<b>performance</b>
Weight/importance	3	2	2	3

Table 3: Decision matrix (performance of alternatives)

		<b>Criteria</b>			
		<b>Cost</b>	<b>Aesthetics</b>	<b>Durability</b>	<b>Energy performance</b>
Alternatives	Solar tile	5	4	4	5
	Concrete tile	4	5	4	5
	Clay tile	5	3	3	4

- i) Construct a normalized decision matrix R **(3 Marks)**
- ii) Construct a normalized decision matrix V **(3 Marks)**
- iii) Determine positive ideal and negative ideal solution sets ( $A^+$  and  $A^-$ ) **(3 Marks)**
- iv) Calculate the separation measure i.e. the distance of each alternative from the positive and negative ideal solution sets **(6 Marks)**
- v) Calculate the relative closeness to the ideal solution **(3 Marks)**
- vi) Rank the alternatives in descending order and select the best alternative with the highest value **(2 Mark)**