KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2019/2020 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

DURATION: 2 HOURS

DATE: 05/02/2021.   **TIME:** 11 – 1 PM.

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 performance
Weight/importance	3	2	2	3

Table 3: Decision matrix (performance of alternatives)

		Criteria			
		Cost	Aesthetics	Durability	Energy performance
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)**