



**MERU UNIVERSITY COLLEGE
OF SCIENCE & TECHNOLOGY**

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University Examinations 2010/2011

SECOND YEAR, SECOND SEMESTER EXAMINATIONS FOR DIPLOMA IN
AGRICULTURAL EDUCATION AND EXTENSION

TEC 0252: FARM STRUCTURES

DATE: APRIL 2011

TIME: 1½ HOURS

INSTRUCTIONS: *Answer Question one and any other two questions*

QUESTION ONE – (30 MARKS)

- (a) Give three examples of climatic factors controlled by agricultural buildings and explain briefly how each of the factors can affect adversely farm production if not controlled. (6 Marks)
- (b) Mention and explain one measure taken to protect the foundation of a building. (6 Marks)
- (c) The site for construction of chicken housing should be selected to meet certain basic requirements. Discuss three such requirements. (6 Marks)
- (d) Cattle generally respond favourably to good management made possible by suitable housing. Give and explain briefly three examples of factors improved by suitable housing. (6 Marks)
- (e) Wood can be used as a building material:
- (i) Name four uses of wood as building material. (2 Marks)
 - (ii) Give two alternative materials which can be replaced by wood for one of the uses mentioned above. (1 Mark)
 - (iii) Compare the above three building materials showing one advantage and one disadvantage of each material. (3 Marks)

QUESTION TWO – (15 MARKS)

Estimate the quantity of materials required to build the floor slab of a room whose dimensions are 12m by 18m if the slab is 15cm and the ratio to use is 1:3:5 and the expected percentage of

waste is 8% while the percentage of shrinkage is 12%. Assume that the bulk density of sand is 1450Kg/m^3 while the bulk density of ballast is 1759m^3 . (15 Marks)

QUESTION THREE – (15 MARKS)

With the help of diagrams where possible, illustrate how each of the following contributes to improving road drainage

- (a) Camber (3 Marks)
- (b) Mitre drains (3 Marks)
- (c) Cut-off drain (3 Marks)
- (d) Drift (3 Marks)
- (e) Culverts (3 Marks)

QUESTIN FOUR – (15 MARKS)

- (a) Explain why in addition to the actual cost of constructing a building, the total annual cost of the building should be determined before the farmer is advised to undertake the construction of a new farm building. (3 Marks)
- (b) State and explain four important factors to consider when estimating the annual cost of a building. (12 Marks)