



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE (DA 09)
DIPLOMA IN CIVIL ENGINEERING (DC 09)

EBC 2323: BUILDING TECHNOLOGY V

END OF SEMESTER EXAMINATION

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer booklet*

This paper consists of **FIVE** questions in **TWO** sections **A & B**

Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question 1

a) Define the following terms:

- (i) Thermal conductivity
- (ii) Thermal resistivity
- (iii) Thermal resistance
- (iv) Surface resistance
- (v) Thermal transmittance (15 marks)

b) A wooded door measuring 2 x 0.8m and 40mm thick has an inside surface temperature of 13°C and outside surface temperature of 9°C. If the thermal conductivity of the wood is 0.14w/m°C, calculate:

- (i) The rate of heat flow through the door
- (ii) Quantity of heat lost through the door in one hour (4 marks)

c) Calculate the total resistance of the block wall given the following information:

- Plaster thickness 20mm
- Wall thickness 225mm
- Rendering thickness 15mm
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Thermal conductivities

- Plaster – 0.40 w/m°C
- Block – 1.20 w/m°C
- Rendering – 0.53 w/m°C (5 marks)

d) Explain the following terms used in sound insulation:

- (i) Reverberation time
- (ii) Decibel scale
- (iii) Sound absorption coefficient (6 marks)

SECTION B (Answer any TWO questions from this section)

Question 2

a) Sketch and label the following forms of insulation:

- (i) Roofs (sheet covering)
- (ii) Insulating outside solid wall (10 marks)

- b) Explain the **TWO** modes of sound transmission (4 marks)
- c) Explain **FOUR** ways of controlling noise along the path of sound (6 marks)

Question 3

- a) Sketch and label a section of the following sound insulating floors:
- (i) Timber floating floor
 - (ii) Floating screed (8 marks)
- b) Define the following terminologies used in fire protection
- (i) Five load
 - (ii) Fire precaution
 - (iii) Fire prevention
 - (iv) Fire protection
 - (v) Fire resistance
 - (vi) Fire stop (12 marks)

Question 4

- a) State the **THREE** reasons for fire protection to building elements (2 marks)
- b) Sketch and label one hour fire resistant to the following structural elements:
- (i) Solid protection to steel beam
 - (ii) Reinforced column
 - (iii) Reinforced beam
 - (iv) Fire resistant timber floor
- c) State **FOUR** aims of building maintenance (4 marks)

Question 5

- a) With the aid of a sketch, describe the construction of a foot path with grass verge, paving slabs on a mortar dots (12 marks)
- b) With the aid of sketch, describe the use of hose-reel (8 marks)