



# **MACHAKOS UNIVERSITY**

**University Examinations 2016/2017**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF BUILDING AND CIVIL ENGINEERING**

**SECOND YEAR SECOND SEMESTER EXAMINATION FOR CERTIFICATE IN  
BUILDING AND CONSTRUCTION TECHNOLOGY**

**BCE BT 210: GENERAL BUILDING CONSTRUCTION II**

**DATE: 2/6/2017**

**TIME: 8:30 – 10:30 AM**

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## **INSTRUCTIONS:**

**This paper consists of five questions answer questions one and any other two questions in this paper**

### **QUESTION ONE (30 MARKS)**

- a) State four functional requirements of a chimney (8 marks)
- b) Outline five functional requirements of a good formwork. (10 marks)
- c) Briefly explain the importance of building maintenance. (6 marks)
- d) Outline three ways in which noise problem can be solved (6 marks)

### **QUESTION TWO (20 MARKS)**

- a) Define the following terms as applies to stairs
  - i) Flight
  - ii) Landing
  - iii) Rise
  - iv) Going
  - v) Baluster(10 marks)
- b) Make a neat sketch of a balustrade and name all the parts. (10 marks)

### **QUESTION THREE (20 MARKS)**

- a) Make neat pictorial sketches of the following types of stairs
  - i) Straight flight
  - ii) Quarter turn
  - iii) Bifurcated
  - iv) Winder turn(16 marks)
- b) State two advantages of thermal insulation (4 marks)

### **QUESTION FOUR (20 MARKS)**

- a) List any two types of maintenance (4 marks)
- b) Briefly explain the following modes of heat transfer
  - i) Radiation
  - ii) Conduction
  - iii) Convection(6 marks)
- c) State two forms of sound giving relevant examples. (6 marks)
- d) Outline any four effect of sound on mankind. (4 marks)

### **QUESTION FIVE (20 MARKS)**

- a) Outline Five functional requirements of a good formwork (10 marks)
- b) Make a neat sketch of a timber column formwork and name all the parts (10 marks)



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### DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

#### FIRST YEAR SECOND SEMESTER EXAMINATION FOR CERTIFICATE IN BUILDING AND CONSTRUCTION TECHNOLOGY

##### BCE BT 116: BUILDING TECHNOLOGY II

DATE: 29/6/2017

TIME: 8:30 – 10:30 AM

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#### INSTRUCTIONS:

**This paper consists of FIVE questions.**

**Answer question one and any other two questions in this paper.**

#### QUESTIONS ONE (30 MARKS)

- a) Name and sketch any two types of walls (10 marks)
- b) Make a neat sketch of a door frame and name all the parts (7 marks)
- c) Outline the procedure to be followed when plastering (5 marks)
- d) Briefly differentiate between pointing and jointing (4 marks)
- e) Outline any two methods of curing (4 marks)

#### QUESTIONS TWO (20 MARKS)

- a) Differentiate between a door frame and a door lining by means of neat sketches. (10 marks)
- b) Make a neat sketch a framed ledged braced and battened door and name all the parts (black elevation) (5 marks)
- c) Make a neat vertical section of the door named in (b) above (5 marks)

#### QUESTION THREE (20 MARKS)

- a) State two main reasons why doors are necessary in buildings. (4 marks)
- b) State two reasons for inserting braces in doors. (4 marks)
- c) Briefly explain the procedure to be followed when hanging a door. (5 marks)
- d) Make neat sketch to show how a panel is fitted in a paneled door (7 marks)

#### **QUESTION FOUR (20 MARKS)**

- a) Briefly outline the procedure to be followed when laying down a cement sand screed (10 marks)
- b) Outline two reasons for rendering (4 marks)
- c) State three reasons why curing is necessary. (6 marks)

#### **QUESTIONS FIVE (20 MARKS)**

- a) Make a neat sketch to show the following in a window
  - i) Transom
  - ii) Mullion (10 marks)
- b) Make a front elevation of a four paneled gunstock door. (10 marks)



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**SECOND YEAR SECOND SEMESTER EXAMINATION FOR CERTIFICATE IN  
BUILDING AND CONSTRUCTION TECHNOLOGY**

**BCE BT 212: CONSTRUCTION MANAGEMENT IV**

**DATE: 2/6/2017**

**TIME: 8:30 – 10:30 AM**

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## **INSTRUCTIONS:**

This paper consists of five questions

Answer questions one and any other two questions in this paper

### **QUESTION ONE (30 MARKS)**

- a) Make a neat sketch of a medium sized organization structure of a construction firm (10 marks)
- b) Outline four ways in which a contract can be discharged (8 marks)
- c) Outline five requirements before entering into a contract (10 marks)
- d) State two reasons for holding site meetings. (2 marks)

### **QUESTION TWO (20 MARKS)**

State five types of civil engineering contracts and outline what they entail (20 marks)

### **QUESTION THREE (20 MARKS)**

- a) Outline five duties of a trade union (10 marks)
- b) Name five office documents and their functions. (10 marks)

**QUESTION FOUR (20 MARKS)**

- a) State four types formal relationships within relationships and outline what they entail (16 marks)
- b) Briefly explain the following terms
- i) Motivation
  - ii) Span of control (4 marks)

**QUESTION FIVE (20 MARKS)**

Make a neat sketch of a masonry workshop including at least five machines (20 marks)



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**SECOND YEAR SECOND SEMESTER EXAMINATION FOR CERTIFICATE IN  
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**BCE BT 214: ENGINEERING DRAWING IV**

**DATE: 5/6/2017**

**TIME: 2:00 – 4:00 PM**

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## **INSTRUCTIONS:**

This paper consists of five questions

Answer question one and any other two questions in this paper.

### **QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) Fig 1 shows a block in 1<sup>st</sup> angle orthographic projection. Draw the block in one-point perspective drawing (10 marks)
- b) Make neat diagrammatic sketches to show the sign convention symbols for the following building materials.
- i) Natural stone
  - ii) Wrot timber
  - iii) Unwrot timber
  - iv) Concrete
  - v) Brick (10 marks)

### **QUESTION TWO (20 MARKS)**

Figure 2 shows a block in 1<sup>st</sup> angle orthographic projection. Draw the block in two-point perspective drawing (20 marks)

### **QUESTION THREE (20 MARKS)**

Fig 3 shows two views of a wooden block and its perspective layout. Copy the layout and draw the block in two-point perspective drawing (20 marks)

### **QUESTION FOUR (MARKS)**

Make neat sketches to show the following types of foundation.

- a) Traditional strip foundation
- b) Raft foundation (20 marks)

### **QUESTION FIVE (20 MARKS)**

Make neat sketches to show the following types of singles roofs including their maximum spans:

- a) Couple roof
- b) Closed couple roof
- c) Collar tie roof
- d) King post roof (20 marks)



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**DEPARTMENT OF BUILDING AND CIVIL ENGINEERING**

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR CERTIFICATE IN  
BUILDING AND CONSTRUCTION TECHNOLOGY**

**BCE CD 115: ENGINEERING SURVEYING I**

**DATE: 2/6/2017**

**TIME: 8:30 – 10:30 AM**

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## **INSTRUCTIONS:**

**This paper consists of five questions**

**Answer question one and any other two questions in this paper.**

### **QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) State and briefly describe four types of levels (8 marks)
- b) Define the term leveling (2 marks)
- c) Explain the three main obstacles in chain surveying (6 marks)
- d) Outline two branches of surveying (4 marks)
- e) State four purposes of surveying (8 marks)
- f) Define the term surveying (2 marks)

### **QUESTION TWO (20 MARKS)**

- a) Briefly explain a procedure of measuring a line across a tall building without setting out right angles (10 marks)
- b) Make a neat diagrammatic sketch to show the basic optical principle of telescope (10 marks)

### **QUESTION THREE (20 MARKS)**

- a) Name five types of surveyors outlining their duties. (10 marks)
- b) Show a method of measuring a line over a small hill (10 marks)

### **QUESTION FOUR (20 MARKS)**

- a) State five types of errors which may be encountered in ordinary leveling (10 marks)
- b) Briefly outline a suitable method of measuring a line across a wide river without setting out right angles. (10 marks)

### **QUESTION FIVE (20 MARKS)**

Briefly explain the following terms as applied in leveling:

- a) Level line
- b) Reference plane
- c) Reduced level
- d) Bench mark
- e) Temporary bench mark
- f) Line of collimation
- g) Spot height
- h) Back sight
- i) Fore sight
- j) Intermediate sight (20 marks)



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**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF BUILDING AND CIVIL ENGINEERING**

**THIRD YEAR SECOND SEMESTER EXAMINATION FOR CERTIFICATE IN  
BUILDING AND CONSTRUCTION TECHNOLOGY**

**BCE CD 310: CONSTRUCTION MANAGEMENT I**

**DATE: 2/6/2017**

**TIME: 8:30 – 10:30 AM**

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## **INSTRUCTIONS:**

This paper consist of five questions

Answer question one and any other two questions in this paper

### **QUESTIONS ONE (COMPULSORY) (30 MARKS)**

- a) State three factors to consider when positioning plant on a given site. (3 marks)
- b) Differentiate between hoarding and fencing (4 marks)
- c) Define the term discipline (2 marks)
- d) Outline any five qualities of a good leader (5 marks)
- e) Outline any four functions of management principles (8 marks)
- f) Explain the meaning of management principles (4 marks)
- g) Name two types of contracts outlining their terms (4 marks)

### **QUESTION TWO (20 MARKS)**

Make a neat sketch to show a site layout plan of a masonry workshop. (20 marks)

### **QUESTIONS THREE (20 MARKS)**

- a) Outline two duties of each of the following members in the building team
  - a) Client
  - b) Quantity surveyor

- c) Architect
  - d) Draughtsman
  - e) Contractor (10 marks)
- b) Briefly explain how the following materials can be stored in a site.
- i) Timber
  - ii) Cement (10 marks)

**QUESTION FOUR (20 MARKS)**

- a) Outline any two methods of programming contracts (10 marks)
- b) Make a neat sketch of a good organization structure of the building team. (10 marks)

**QUESTION FIVE (20 MARKS)**

- a) Explain the importance of sign boards in a site (5 marks)
- b) Outline any two types of tendering (10 marks)
- c) Briefly explain the term span of control (5 marks)