



TECHNICAL UNIVERSITY OF MOMBASA  
**Faculty of Engineering &  
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**CERTIFICATE IN BUILDING & CIVIL ENGINEERING (CBCE)**

EBC 1203: FORCES IN TRUSSES & FRAMES

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: OCTOBER 2013**

**TIME ALLOWED: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

Answer any **THREE** questions  
Maximum marks for each part of a question are as shown  
This paper consists of **THREE** printed pages

### Question One

a) Determine the nature and magnitude of the member forces in figure 1:

$R_B$

### Question Two

Determine the magnitude and nature of member forces of the truss in figure 2. Use method of joint resolution.

25KN

### Question Three

a) Define the following terms:

- (i) Ties
- (ii) Struts

(6 marks)

b) Determine the magnitude and direction of the resultant force system in figure 3

(14 marks)

Figure 3

**Question Four**

- a) Determine the nature and magnitude of the member forces in figure 4 (14 marks)
- $R_B$

b) Define:

- (i) Resultant of a force system  
(ii) Equilibrium of a force system (6 marks)

**Question Five**

Determine the magnitude and nature of the member forces in figure 4. (20 marks)

$R_B$