



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**(A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**HIGHER DIPLOMA IN BUILDING & CIVIL ENGINEERING (HDBC 11)**

EBC 3224: HIGHWAY & TRAFFIC ENGINEERING II

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: FEBRUARY 2013**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

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 **TWO** printed pages

### Question One

- a) State **FIVE** points considered in selecting design standards for a highway. **(10 marks)**
- b) With the aid of a sketch, explain the term “Deceleration Lane”. **(5 marks)**
- c) Outline the **FIVE** features considered when addressing road capacity based on prevailing road conditions. **(5 marks)**

### Question Two

- a) Define the following terms associated with street lighting:
  - (i) Luminous intensity
  - (ii) Outreach **(4 marks)**
- b) With the aid of sketches, explain the following patterns of lighting:
  - (i) Staggered
  - (ii) Opposite **(10 marks)**
- c) Distinguish between Silhouette and Reverse Silhouette. **(6 marks)**

### Question Three

- a) State **FIVE** objectives of carrying out traffic volume studies. **(10 marks)**
- b) Explain the following terms:
  - (i) Spot speed
  - (ii) Travel speed **(4 marks)**
- c) State **SIX** reasons for carrying out spot speed studies. **(6 marks)**

### Question Four

- a) Name and explain the **THREE** main categories of traffic signs. **(9 marks)**
- b) State the **FOUR** main disadvantages of traffic signals. **(4 marks)**
- c) Name and describe the **THREE** Road Delineators. **(7 marks)**

### Question Five

- a) Distinguish between the **TWO** main types of Parking. **(4 marks)**
- b) State the **THREE** main reasons for providing lighting on roads. **(4 marks)**
- c) State **THREE** advantages and **THREE** disadvantages of Rotaries. **(6 marks)**
- d) (i) Sketch a Diamond Pattern of grade separation.

(ii) State the underlying principle of grade separation.

**(7 marks)**