



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

*Faculty of Engineering and Technology*

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

**DIPLOMA IN CIVIL ENGINEERING  
DIPLOMA IN ARCHITECTURE**

EBC 2304: RESEARCH METHODOLOGY & PROJECT

**SPECIAL/SUPPLEMENTARY EXAMINATION**

SERIES: OCTOBER 2011

**TIME: 2 HOURS**

## **Instructions to Candidates:**

You should have the following for this examination

- *Answer booklet*

This paper consists of **FIVE** questions. 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) (i) Define the term research  
(ii) State purposes of research (10 marks)
- b) Distinguish the following terms as applied in research:  
(i) Experimental design and correctional design  
(ii) Descriptive statistics and inferential statistics (6 marks)
- c) Describe the **THREE** qualities of an investigation (6 marks)
- d) The following data was obtained from research. Determine the law relating X to Y (8 marks)

X	1	2	3	4	5	6	7	8	9	10
Y f(x)	0	10	23	40	61	80	115	148	185	226

## SECTION B (Answer any TWO questions from this section)

### Question 2

- a) Outline the procedure for hypothesis testing stating possible errors (10 marks)
- b) Describe **THREE** types of Quantitative Research Design (16 marks)

### Question 3

- a) Describe the key measures of central tendency (8 marks)
- b) Score marks obtained by two observers are as follows:
- |            |    |    |    |    |    |
|------------|----|----|----|----|----|
| Observer A | 63 | 70 | 56 | 35 | 50 |
| Observer B | 69 | 65 | 60 | 40 | 50 |
- (i) Compute Pearson's product moment correlation coefficient  
(ii) Compute the spearman's rank correlation coefficient  
(iii) Compare the results obtained and make necessary comments (12 marks)

### Question 4

- a) Explain action that can be take to increase accuracy of an experiment (5 marks)
- b) Weights gained by pigs were recorded as follows
- |   |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|
| A | 94 | 89 | 80 | 88 |    |    |    |
| B | 65 | 87 | 73 | 79 | 81 | 69 |    |
| C | 75 | 69 | 83 | 81 | 72 | 79 | 90 |
| D | 59 | 78 | 67 | 62 | 83 | 76 |    |

Determine if these data is sufficient evidence the difference in mean weights for the four dig 5 .  
 $\alpha = 0.05, F = 3.13$

Take (15 marks)

**Question 5**

Describe the main components of a final research report (20 marks)