



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY (DIT/JAN2012)

YEAR 1 SEM 1

EIT 2102: COMPUTER SYSTEMS & ORGANIZATION

END OF SEMESTER EXAMINATION

SERIES: APRIL 2012

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)** plus 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 One (30 Marks)

- a) Explain the following terms
- (i) BIOS
 - (ii) IDE Cable
 - (iii) Operating System
 - (iv) Firmware (8 marks)
- b) With the aid of a diagram, describe the following hard disk physical components (6 marks)
- (i) Platters
 - (ii) Substrate Materials
 - (iii) Media Layer
- c) Briefly explain how the motherboard interconnects other computer devices for communication (3 marks)
- d) Differentiate between South Bridge and North Bridge Chipsets (4 marks)
- e) Explain **THREE** services offered by the operating system to users (3 marks)
- f) Explain the following interlaced motherboard characteristics (6 marks)
- (i) Built-in Components
 - (ii) Form Factor
 - (iii) Chipsets

SECTION B (Attempt any TWO sections)

Question Two (20 marks)

- a) With the aid of a diagram, illustrate the **FIVE** primary groups of computer components according to Von Neumann Model (10 marks)
- b) Give **ONE** function of each of the groups illustrated above (10 marks)

Question Three (20 marks)

- a) Differentiate the following:
- (i) Arithmetic Logic Unit (ALU) and Logic Circuit Board (Controller)
 - (ii) Ports and Connectors (4 marks)
- b) Using a well illustrated diagram, explain the operations of a read and write operation in a hard disk. (16 marks)

Question Four (20 marks)

- a) Explain the functions of the following in the Central Processing Unit
- (i) ALU
 - (ii) Control Unit
 - (iii) Main Memory
 - (iv) Registers (12 marks)
- b) Explain how the operating system manages resources in a computer system (8 marks)

Question Five (20 marks)

- a) Explain the term motherboard (1 mark)
- b) Explain **TWO** functions of the motherboard (4 marks)
- c) Draw an aerial view diagram of a motherboard and show how the following chipsets are interconnected. (15 marks)
- (i) Central Processing Unit
 - (ii) South Bridge and North Bridge Chipsets
 - (iii) AGP Controller
 - (iv) Onboard LAN, Onboard Audio and ATA
 - (v) Memory Controller