



TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

UNIVERSITY EXAMINATION FOR

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

BIT 2102 : COMPUTER SYSTEMS AND ORGANISATION

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE : DECEMBER 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **five** questions. Question ONE is Compulsory. Attempt any other TWO questions

Do not write on the question paper.

Question ONE

a) During an interview for a post of IT Technician, the panel wanted the applicant to be quite conversant with computer system. Explain the difference between the following terms:

- i) “Digital computer” and “Analog computer”
 - ii) Basic Input/Output System (BIOS) and Complementary metal–oxide–semiconductor (CMOS)
 - iii) Computer Hardware and Computer Software
 - iv) Graphical User Interface and Commandline User Interface
- (16 Marks)**

b) You have been hired by a firm as an IT manager and your first task is to advise the management on the IT infrastructure needed for the firm.

Required:

- i) State any two factors you would consider when buying printers **(2 Marks)**
- ii) State any three factors you would consider when buying computer monitors **(3 Marks)**
- c) Evaluate the following:
 - i) $110011_2 - 100101_2$ **(2 Marks)**
 - ii) $110.11_2 \times 101.01_2$ **(2 Marks)**
 - iii) $1001011_2 \div 1111_2$ **(2 Marks)**
- d) Convert the following numbers to the new bases indicated:
 - i) 428.371_{10} **(Base 16)** **(2 Marks)**
 - ii) 101011100.101001111_2 **(Base 8)** **(2 Marks)**

Question TWO

- a) Explain any five Functions of an Operating System **(10 Marks)**
- b) Computers can be classified according to generations. For the first five generations of computers identify the major electronic component and state any other two major characteristics. **(10 Marks)**

Question THREE

- a) The BIOS provides support for devices and features of your computer system. Explain any four the functions performed BIOS. **(8 Marks)**
- b) Every system BIOS has two types of hardware to support. Explain the two types of hardware. **(4 Marks)**
- c) The contents of the memory can be accessed using various techniques. Describe the following access modes, stating a suitable example of storage:
 - i) Sequential access
 - ii) Random access
 - iii) Direct access
 - iv) Indexed access **(8 Marks)**

Question FOUR

a) Explain the difference between:

i) “Processor registers and Processor cache

ii) Random Access Memory (RAM)” and “Read-Only Memory (ROM)” **(8 Marks)**

b) Computer data and programs are stored on storage medium. Explain the following terms:

i) Magnetic storage

ii) Optical storage

iii) Solid-state drive **(6 Marks)**

c) If you're ready to take the plunge into storing your files, photos, contacts and more, you can do so in the cloud but need help deciding which service is right for your needs and wallet. **Required:**

i) Explain the term “Cloud storage” **(2 Marks)**

ii) Explain any two advantages and disadvantages of cloud storage **(4 Marks)**

Question FIVE

a) The Central Unit (CU) uses four basic steps to process data called machine cycle. Describe these four steps. **(8 Marks)**

b) When a computer is switched on, it performs series routines until it loads the operating system. Describe the following terms:

i) Power-On-Self Test (POST)

ii) Warm-booting **(4 Marks)**

c) Explain any four types of Read Only Memory (ROMs) **(8 Marks)**