



TECHNICAL UNIVERISTRY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BSIT 14S– Y1 S1)

BIT 2102: COMPUTER SYSTEMS & ORGANIZATION

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer Booklet

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (Compulsory)

- a) Explain the difference between the following terms:
- (i) “Warm Boot” and “Cold Boot”
 - (ii) “Application Software” and “Systems Software”
 - (iii) “Random Access Memory” and “Read Only Memory”
 - (iv) “Input Hardware” and “Output Hardware”
- (16 marks)**
- b) Explain any FIVE major functions of an operating system
- (10 marks)**

- c) State any FOUR functions of BIOS (4 marks)

Question Two

- a) Computers have evolved over the years, commonly known as “computer generations”. For each of the five generations of computer, identify:
- (i) The major electronic components (5 marks)
 - (ii) Other TWO characteristics (10 marks)
- b) Using suitable examples, distinguish between:
- “General-Purpose Computers” and “Special Purpose Computers” (4 marks)
- c) Explain the term “Computer System” (1 mark)

Question Three

- a) Explain the following terms as used in number systems:
- (i) Base
 - (ii) Position value (4 marks)
- b) Evaluate the following:
- (i) $1101.1_2 \times 101.01_2$ (3 marks)
 - (ii) $1101101_2 \div 1001_2$ (3 marks)
 - (iii) $1101.101_2 + 101.001_2 + 101001.111_2$ (3 marks)
- c) Using a suitable diagram, explain the major components of the central processing unit (7 marks)

Question Four

- a) Convert the following numbers to the new bases indicated:
- (i) $4C5.2_{16}$ (Base 10) (3 marks)
 - (ii) 357.321_8 (Base 10) (3 marks)
 - (iii) 27.6875_{10} (Base 2) (3 marks)
- b) Using suitable examples, distinguish between:
- (i) “Analog Computer” and “Digital Computers”
 - (ii) “Super Computers” and “Micro Computers” (4 marks)
- c) Explain the term “Motherboard.” Hence state any TWO components found on the motherboard (3 marks)

Question Five

- a) Explain any THREE components of an operating system (3 marks)
- b) The contents of the memory can be expressed by various methods. Describe methods giving a suitable example in each case. (9 marks)
- c) Explain the difference between:
- (i) “Utility programs” and “Device Drivers”: (2 marks)
 - (ii) “Magnetic storage” and “Optical Storage” (2 marks)

d) Explain the FOUR steps of a machine cycle during data processing

(4 marks)