



TECHNICAL UNIVERISTY OF MOMBASA

# Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:  
BACHELOR OF SCIENCE IN STATISTICS & COMPUTER SCIENCE  
BACHELOR OF TECHNOLOGY IN APPLIED PHYSICS  
BACHETOR OF TECHNOLOGY IN RENEWABLE ENGINEERING  
(BSSC 13J/BTAP 13J/BTRE 13J)

**EIT 4150: INTRODUCTION TO IT**

END OF SEMESTER EXAMINATION

**SERIES: DECEMBER 2013**

**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** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

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**Question One (Compulsory)**

- a) Briefly define the following terms as used in fundamentals of computer systems. Use a sketch to illustrate where necessary. **(4 marks)**
- (i) Application software
  - (ii) Operating systems
  - (iii) Disk Defragmentation
  - (iv) Computer network
- b) The promise that our society is different from what it would have been without the computer revolution is generally accepted. In your opinion is our society better than it would have been without this revolution? Give an example in your discussion. **(4 marks)**

- c) The central processing unit is said to be the “brain” of the computer. Why do you think this is so? **(2 marks)**
- d) The historical development of the modern computer has gone through FIVE generations. State the main electronic components used to distinguish each generation of computers. **(5 marks)**
- e) Magnetic tapes are one of the first secondary storage media to be used in computers. Why are they still necessary as part of a modern computer system? **(2 marks)**
- f) Using concise examples, discuss TWO benefits resulting from the increased power of modern computers. **(2 marks)**
- g) Cache memory can be used to increase the amount of work done by a computer in a given time. Explain the function of cache and how it achieves its aim. **(2 marks)**
- h) At the lowest level data operates in bits which are basically electrical signals. Use the knowledge you learnt about data and its transmission to convert these decimal numbers to binary:  
 (i)  $45_{10}$   
 (ii)  $2130_{10}$  **(4 marks)**
- i) As use of the computer and especially of the internet becomes common place, cyberphobia and technophobia will be a thing of the past. However, still shrouded in some mystery is the word “computer virus”  
 (i) In your opinion, what is meant by a computer virus? Give TWO possible sources of a virus? **(2 marks)**  
 (ii) List and explain the THREE objectives of computer security. **(3 marks)**

### Question Two

- a) List the THREE components which make up the central processing unit. **(3 marks)**
- b) Describe the features that distinguish processors in terms of performance. **(6 marks)**
- c) Briefly describe the functions of the Arithmetic and logic unit in the CPU. **(3 marks)**
- d) By use of a diagram show the functional components of a computer system including data flows, control flows and the flow of program instructions. **(8 marks)**

### Question Three

- a) List and discuss any FOUR considerations you would use when selecting a computer software **(4 marks)**
- b) List and discuss any FOUR benefits of using a database **(4 marks)**
- c) State FOUR types of data held in spreadsheet cell. **(4 marks)**
- d) Discuss any FOUR features of a word processor **(4 marks)**
- e) Discuss TWO reasons why organizations need to acquire system software. **(4 marks)**

### Question Four

- a) Lack of bandwidth is a constant problem with many data communication networks. What is meant by the term “Bandwidth” and why is it important? **(4 marks)**

- b) Explain the difference between analogue and digital signals giving an example for each. **(4 marks)**
- c) Explain why it is necessary to use a modem to transmit a digital signal via a standard telephone network. **(2 marks)**
- d) Buffering is often used to help match speed differences in some communication networks. Explain the term and how this process works. **(3 marks)**
- e) A network can be described in terms of its physical or logical layout. With the aid of diagrams, discuss the features of the bus and tree topologies, providing the advantages and disadvantages of each. **(3 marks)**
- f) When perfected voice input will obviously lead to the demise of the keyboard! Make up TWO convincing arguments; one for and one against this idea. **(4 marks)**

### **Question Five**

- a) Auxiliary or backing storage devices are normally are described as mass storage devices. What is mass storage? Give TWO examples of such devices. **(4 marks)**
- b) Explain the terms “Data Transfer”, “Access Time” and “Direct Access” with regard to computer disks. **(6 marks)**
- c) A computer system needs both primary and secondary storage in order to function efficiently provide the rationale for secondary storage, giving at least FOUR advantages it offers. **(6 marks)**
- d) List TWO major differences between Hard disks and Floppy disks **(4 marks)**