



MERU UNIVERSITY COLLEGE OF SCIENCE & TECHNOLOGY

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University Examinations 2010/2011

FIRST YEAR, FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY (BBIT)

BBT 2101: FUNDAMENTALS OF COMPUTER SYSTEMS

DATE: APRIL 2010

TIME: 2 HOURS

INSTRUCTIONS: *Answer Question ONE and any other TWO Questions*

QUESTION ONE (Total Marks – 30)

- (a) Fiber-optic cables have several advantages over cables that use wire, such as twisted-pair and coaxial cables. Outline the advantages and disadvantages. (4 marks)
- (b) Briefly describe any two main functions performed by operating systems. (6 marks)
- (c) Explain the startup process for a personal computer. (4 marks)
- (d) Distinguish between CISC and RISC processors. (4 marks)
- (e) Perform the computations below
 - (i) Convert 26.625_{10} to binary
 - (ii) Convert 100100.001_2 to decimal (4 marks)
- (f) Outline the advantages and disadvantages of developing pre-packaged software. (4 marks)
- (g) Identify four advantages of document creation with Microsoft Word as compare to a conventional typewriter. (4 marks)

QUESTION TWO (Total Marks – 20)

- (a) Distinguish between the following terms
 - (i) Internet and extranet
 - (ii) MICR and OCR (4 marks)
- (b) Briefly explain any two types of network topologies. (6 marks)

- (c) A Computer file is a collection of information initially created in memory and then stored with a file name on a secondary storage. State and explain six types of computer files. (6 marks)
- (d) Multi-programming systems are sophisticated because they require additional hardware and software features. List and explain these features. (4 marks)

QUESTION THREE (Total Marks – 20)

- (a) Perform the following computations
- (i) Subtract 01110_2 from 10101_2 using 1's complement method
- (ii) Subtract 0111000_2 from 1011100_2 using 2's complement method (4 marks)
- (b) Briefly describe the data storage hierarchy used in data processing with an appropriate illustration. (4 marks)
- (c) Identify the types of keys on a keyboard and outline the functions and examples of each. (6 marks)
- (d) The direction in which data flows along transmission media is classified into three types. Explain the three types of transmission direction. (6 marks)

QUESTION FOUR (Total Marks – 20)

- (a) The file organization refers to the physical arrangement of data on the backing storage devices such as tape and disks. Briefly distinguish between the Indexed Sequential Organizational and Random Organization giving their advantages and disadvantages. (6 marks)
- (b) Using a diagram, show how the hardware components of a computer are interrelated. (4 marks)
- (c) Security of information systems is the protection of availability, confidentiality and integrity. Outline six ways of minimizing risks of the threats to information system security. (6 marks)
- (d) State four advantages of E-mail (electronic mail) (4 marks)

QUESTION FIVE (Total Marks – 20)

- (a) System Software consists of programs that co-ordinate the activities of hardware and other programs. Briefly identify four common functions of systems software. (4 marks)
- (b) Choice of storage devices is influenced by different factors. Explain any four of these factors. (4 marks)
- (c) Validation is a process where data subjected to series of tests to determine the validity of a piece of data. Briefly explain six types of validation checks. (6 marks)
- (d) What are the advantages of using the database-oriented approach of organizing data? (6 marks)