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**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR
THIRD YEAR SECOND SEMESTER EXAMINATIONS**

**FOR BACHELOR
OF
SCIENCE IN INFORMATION TECHNOLOGY**

COURSE CODE: BIT326E

COURSE TITLE: MULTIMEDIA TECHNOLOGY

DATE: Friday 22/04/2022 TIME: 8:00a.m-10:00a.m

INSTRUCTIONS TO CANDIDATES

Answer Questions ONE and ANY OTHER TWO

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

QUESTION ONE (30 MARKS)-COMPULSORY

- a) What is meant by the terms Multimedia and Hypermedia? Distinguish between these two concepts. [4marks]
- b) Define HyperText and explain the traversal through hypertext. [4marks]
- c) Explain what is hypermedia and list 4 hypermedia applications. [4marks]
- d) Explain what is meant by the terms static (or discrete) media and dynamic (or continuous) media? Give examples of each type of media. [4marks]
- e) Explain why is file or data compression necessary for Multimedia activities? [3marks]
- f) Explain the difference between multimedia and multimedia system. [4marks]
- g) Discuss the key distinctions between multimedia data and more conventional types of media? [5marks]

QUESTION TWO (20 MARKS)

- a) Explain the key issues or problems a multimedia system have to deal with when handling multimedia data? [5marks]
- b) List and explain basic characteristics of multimedia system? [5marks]
- c) Discuss some of the challenges that can face the multimedia systems. [5marks]
- d) List and explain 5 desirable features in multimedia systems. [5 marks]

QUESTION THREE (20 MARKS)

- a) List and explain the hardware and software components that are required in multimedia system? [5marks]
- b) Briefly explain the aims of the following multimedia projects? [6 marks]
 - i. Camera based object tracking
 - ii. 3D motion capture
 - iii. Digital fashion
- c) Define Multimedia application and give 6 examples on multimedia applications. [5marks]
Multimedia application: is an application which uses a collection of multiple
- d) Define the following terms: [4marks]
WWW, W3C, SGML, HTML, HTTP, XML

QUESTION FOUR (20 MARKS)

- a) Define the hardware devices: ADC and DAC. Do you need ADC for a multimedia data that is already generated by the computer explain why? [4marks]
- b) Explain how to input the printed text, printed image, and handwritten text to your computer? [3marks]
- c) Define the following terms: [6marks]
 - 1) Image sampling
 - 2) Image quantization
 - 3) Digital Image
- d) Explain the main processes that multimedia system has to deal with? [3marks]
- e) Explain the bit-map representation in computing and computer graphics. [4marks]

QUESTION FIVE (20 MARKS)

- a) What is a color look-up table and how is it used to represent color? Give an advantage and a disadvantage of this representation with respect to true color (24-bit) color. How do you convert from 24-bit color to an 8-bit color look up table representation? [10 marks]
- b) GIF and JPEG are two commonly used image representations. Do they usually use lossless or lossy compression? State the major compression algorithm (if lossless) or the lossy steps of the algorithm (if lossy) for each representation. [5 marks]
- c) What is the YIQ color model? How is compression achieved with YIQ in Analog NTSC Video and Digital MPEG Video? [5 marks]