Kirinyaga University

UNIVERSITY EXAMINATION 2017/2018
YEAR IV SEMESTER II EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY AND
BACHOLOR OF SCIENCE IN MATHEMATICS & COMPUTER SCIENCE
ICS 2303: MULTIMEDIA SYSTEMS
Date: Tuesday, 17th April 2018   **Time**: 2.00pm – 4.00pm

INSTRUCTIONS

*Answer Question One and any other **two** questions*

QUESTION ONE (30 MARKS)

a) Justify FOUR reasons why a multimedia developer should use 3D graphics over 2D graphics **[4 Marks]**

b) Define the term Multimedia system giving two examples. **[2 Marks]**

c) Distinguish between static media and dynamic media then give two examples for each type of media **[4 marks]**

d) Explain why file or data compression is necessary for Multimedia systems and applications **[4 marks]**

e) Define the term MIDI then explain the features that make MIDI suitable for multimedia applications. **[4 marks]**

f) Differentiate between Lossy and Lossless compression in multimedia systems **[4 marks]**

g) Differentiate between Asymmetric codecs and Symmetric codecs **[4 marks]**

h) Outline any FOUR key characteristics of a Multimedia System. **[4 marks]**

QUESTION TWO (20 MARKS)

a) Explain **FIVE** factors that need to be considered when choosing the storage requirements necessary for Multimedia Systems and application. **[10 marks]**

b) Differentiate between Run-length Encoding and Huffman coding as it's used in multimedia applications **[4 marks]**

c) Explain how the human eye sense colour, and Give TWO characteristics of the human visual system that can be exploited for the compression of colour images and video. **[6 Marks]**

QUESTION THREE (20 MARKS)

a) Discuss **FIVE** issues of functionality that need to be provided in order to effectively use a wide variety of media in Multimedia applications. In your answer briefly address how such functionality can be facilitated in general multimedia applications. **[10 marks]**

b) Highlight the implications of Nyquist's Sampling Theorem for multimedia data in developed applications **[4marks]**

c) Explain **THREE** the major compression algorithms for lossless compression used in multimedia systems and application **[6 marks]**

QUESTION FOUR (20 MARKS)

a) Different types of media require different types of supporting operations to provide adequate levels of functionality. Briefly discuss what operations are needed to support a wide range of multimedia applications for the following media. **[8 marks]**

      i. Audio

      ii. Graphics

      iii. Image

      iv. Video

b) Both JPEG and GIF support an interesting feature that is very useful when they are used in Web pages.

    i. Give **TWO** strengths and weaknesses for each of the two formats.

        [8 marks]

    ii. Identify the format that allows higher compression—JPEG or GIF, and Explain why. **[4 marks]**

QUESTION FIVE (20 MARKS)

a) Discuss any FIVE limitations of Video Conferencing as a method of communicating between two or more users in different location. **[10 marks]**

b) Explain any FIVE applications areas of multimedia applications in the world today **[10 marks]**