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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
THIRD YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)

Date: 3rd August, 2022
Time: 8.30am –10.30am

KCS 302 - MULTIMEDIA SYSTEMS

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Distinguish between Multimedia and Hypermedia (4 marks)
- b) Outline four basic characteristics of a multimedia system. (4 marks)
- c) The interface to the final presentation of media is usually interactive. Explain. (2 marks)
- d) Outline four examples of Multimedia Applications (6 marks)
- e) A multimedia presentation has 30 minutes of CD-quality digital audio in .wav files. What is the storage required for these files? (4 marks)
- f) A photograph of 3 x 4 inches is scanning in 300dpi resolution and 8-bit colour. The image is then saved in a jpeg file with 1:20 compression ratio. It is used on a web page. If a viewer connecting to the Internet using a modem with typical transfer rate of 800 bytes/sec, how long will it take to download the image to his/her computer? (4 marks)
- g) Describe four key features of a Multimedia Authoring System. (6 marks)

QUESTION TWO (20 MARKS)

- a) Explain the significance of data encryption as used in multimedia (2 marks)
- b) Distinguish between static media and dynamic media giving two examples in each case (4 marks)
- c) Explain four models used in multimedia authoring. (8 marks)
- d) Describe four hardware features that a Multimedia System should possess (6 marks)

QUESTION THREE (20 MARKS)

- a) State the Nyquist's Sampling Theorem. (2 marks)
- b) Explain the implications of Nyquist's Sampling Theorem to multimedia data (4 marks)
- c) For each of the following media types, graphics, images, audio and video, explain the effects of the Nyquist's Sampling Theorem on the quality of the data and the form in which sampling effects manifest themselves in the actual data (12 marks)
- d) Distinguish between lossy and lossless data compression (2 marks)

QUESTION FOUR (20 MARKS)

- a) Explain two uses of database in multimedia (4 marks)
- b) Explain two advantages of RAID technology as a medium for the storage and delivery of large data. (4 marks)
- c) Outline four messages that spoken text convey which written text cannot. (6 marks)
- d) Explain four color models that can be used in multimedia application (6 marks)

QUESTION FIVE (20 MARKS)

- a) Evaluate four considerations to be taken into account in managing audio files and integrating them into multimedia projects (6 marks)
- b) Explain the importance of text in a multimedia presentation (2 marks)
- c) Analyze three factors that affect the legibility of text. (6 marks)
- d) Describe four considerations that need to be taken into account when designing a multimedia system (6 marks)