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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE
KCS 302 – MULTIMEDIA SYSTEMS

Date: 09TH April 2024
Time: 2:30PM – 4:30PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- Calculate the Bit Rate of a standard audio CD with a data rate of 44.1kHz/16 where only a single track was used. (6 Marks)
- Describe the following terms as used in multimedia:
 - Sound (2 Marks)
 - Animation (2 Marks)
- Highlight the three main categories that Graphics fall into: (6 Marks)
- Discuss the various multimedia authoring tools based on the method used for sequencing or organizing multimedia elements and events. (6 Marks)
- With the aid of an illustration, differentiate between serif and sans-serif fonts giving examples of each. (4 Marks)
- When designing animations, there is a sequence that is key to achieve the best results, highlight the steps that are used in this sequence. (4 Marks)

QUESTION TWO (20 MARKS)

- Discuss the two main methods of taxonomy of compression. (8 Marks)
- Calculate the bandwidth requirement of an uncompressed stereo audio signal of a CD quality 16-bit sampled at 44.1Khz. (4 Marks)
- There are many principles of animation that became the generally accepted techniques in animation. Vividly using illustrations, describe any four of the principles of animation. (8 Marks)

QUESTION THREE (20 MARKS)

- Demonstrate any five products you can make with multimedia authoring software. (10 Marks)
- There are many types of audio recording systems and each one of them has got **THREE** major components, highlight the three components giving an example of each. (6 Marks)
- Discuss the two types of sounds in multimedia systems. (4 Marks)

QUESTION FOUR (20 MARKS)

- Mono sounds are flat and unrealistic compared to stereo sounds, which are much more dynamic and lifelike. Demonstrate the difference between the two by highlighting the formula for determining the size of the digital audio in both. (6 Marks)
- Explain four differences between bitmap and vector images (8 Marks)
- Discuss the relation between multimedia and hypermedia using illustrations (6 Marks)

QUESTION FIVE (20 MARKS)

- a) A single bit rate and single sampling rate are recommended throughout the work. An audio file size can be calculated with the simple formula. What is the file size in disk of a one-minute recording of CD quality music at A 44 kHz sampling rate and 16-bit resolution? Show your workings and the formula. (6 Marks)
- b) Defining the term resolution, illustrate the two ways/types of measuring resolution in Multimedia Systems. (9 Marks)
- c) Explain the working of modulation demodulation in multimedia systems. (5 Marks)