



KENYATTA UNIVERSITY

**EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (COMPUTER
SCIENCE)**

SCO 407: MULTIMEDIA SYSTEMS

2ND SEMESTER 2023/2024

TIME: 2 HOURS

INSTRUCTIONS:

ATTEMPT QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- i. Define Multimedia (2 marks)
- ii. Explain the difference between HyperText and HyperMedia (4 marks)
- iii. Discuss four characteristics of multimedia systems (8 marks)
- iv. Discuss five desirable features of multimedia systems (10 marks)
- v. Briefly explain any four areas of application of multimedia (4 marks)
- vi. MPEG-4 comprises of 6 Structured Audio tools .Discuss two of them (2 marks)

Question Two (20 marks)

- a. Define the following terms (6 marks)
 - i. Sound
 - ii. Sound wave
 - iii. Acoustics
 - iv. Transducer
 - v. Microphone
 - vi. Speaker
- b. State and discuss five components of multimedia systems (10 marks)
- c. Define a multimedia authoring system (2 marks)
- d. Define a multimedia authoring paradigm (2 marks)

Question Three (20 marks)

- a. There are several types of multimedia authoring paradigms, discuss five of them (10 marks)
- b. Discuss the difference between Multimedia Programming vs Multimedia Authoring (2 marks)
- c. State three rules for good multimedia scripting (3 marks)
- d. Animation is important in multimedia systems, state five reasons of animation (5 marks)

Question four (20 marks)

- a. Discuss three types of Audio in Multimedia Applications (6 marks)
- b. There are different types of interactive multimedia, discuss three (6 marks)
- c. several factors should be considered in the visual design of a multimedia systems, discuss three of them (6 marks)
- d. Discuss Storyboarding in multimedia systems (2 marks)

Question Five (20 marks)

- a. Explain the differences between analog signals and digital signals? (2 marks)
- b. Discuss the following multimedia software tools (10 marks)
 - i. Macromedia Soundedit
 - ii. CoolEdit
 - iii. Cakewalk
 - iv. Cubase
 - v. Logic Audio
 - vi. Adobe Photoshop.
 - vii. Adobe Premiere
 - viii. Macromedia Freehand
 - ix. Videoshop
 - x. SGI MovieMaker
- c. A continuous-time signal $x(t)$ is band-limited to 4 kHz. Apply the Nyquist Sampling Theorem to determine the minimum sampling rate required to accurately represent this signal in the digital domain. If the sampling rate is set higher than the Nyquist rate, what potential issues might arise in the digital representation of the signal? Explain briefly. (8 marks)