INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF SCIENCE AND TECHNOLOGY

END OF SEMESTER EXAMINATIONS - DECEMBER 2025

PROGRAMME: MIT
YEAR/SEM: YEAR 2/SEMESTER 1
COURSE CODE: MIT813
NAME: MULTIMEDIA AND EMERGING TECHNOLOGIES

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Attempt one question

Question 1:

A healthcare startup is creating a multimedia-based telemedicine and patient education system. The system combines 3D animations, video consultations, augmented reality demonstrations, and interactive learning modules to help patients understand medical procedures, track their health, and communicate with doctors remotely.

Tasks

a) Explain the role of multimedia in enhancing the effectiveness of this telemedicine system. (10 marks)

b) Identify and explain the major technological and societal forces that are fueling the rise of multimedia innovations such as this healthcare platform. (10 marks)

c) Discuss three key advantages of using multimedia for patient education and healthcare delivery. (10 marks)

d) Give one real-life example of a multimedia healthcare tool and explain how it improves patient outcomes. (10 marks)

Question 2:

The Ministry of Tourism is establishing a Smart Tourism Multimedia Information Center in a major city to improve visitor experiences. The center will use advanced multimedia technologies to provide interactive information, display cultural documentaries, guide tourists through virtual tours, and offer self-service information kiosks.

The system will require:
- High-performance multimedia computers capable of running interactive 3D tourist maps
- Large storage systems for high-resolution videos, virtual reality content, and digital archives of cultural sites
- Various input tools
- Output devices
- High-speed processors, enough RAM, and modern display technologies to support smooth multimedia playback

The Ministry expects the center to be user-friendly, efficient, and capable of handling large volumes of multimedia data daily.

Tasks

a) Recommend and justify the hardware specifications (processor, RAM, storage, and display) needed for the multimedia computers in the Smart Tourism Information Center. (10 Marks)

b) Identify and describe five multimedia input devices that would support content creation and visitor interaction in the center. Explain the role of each. (10 Marks)

c) Discuss four appropriate multimedia output devices needed for the center, highlightingtheir importance in delivering tourist information and experiences. (10 Marks)

d) Explain two major challenges the Ministry might encounter in implementing this multimedia system and propose realistic solutions for each. (10 Marks)

SECTION B

Attempt a maximum of 3 questions.

Question 1:

(a) Define multimedia and explain the four fundamental attributes of multimedia computing. (8 marks (14 marks)

(b) Explain how multimedia affects computing system requirements (6 marks).

Question 2:

a) Propose an idea for a multimedia project and briefly describe its theme. (5 marks)

b) State the main goals of the project and identify the intended users. (5 marks)

c) List and describe the multimedia components (text, audio, video, images, animation, etc.) that will be included in the project. (5 marks)

d) Mention the hardware and software tools required to develop and deliver your proposed multimedia project. (5 marks)

Question 3:

a) Identify and describe five different sources from which digital images can be obtained. (10 marks)

b) Discuss five commonly used file formats for saving digital images and explain their features. (10 marks)

Question 4:

a) Compare CRT and LCD monitors as used in the multimedia industry. (10 marks)
b) Explain the difference between a laserjet and inkjet printers. What type do you recommend for a multimedia project, and why? (6 marks)
c) Explain the memory requirements for multimedia applications. (4 marks)

Question 5:

a) Describe six different multimedia applications that are commonly used today. (12 marks)

b) Draw and label a simple diagram showing the general structure or architecture of a multimedia system. (8 marks)

Question 6:

a) Discuss the different types of digital images and explain how each stores pixel information. (10 marks)
b) Compare the RGB additive colour model and the CMYK subtractive colour model, including

appropriate uses for each. (10 marks)

Question 7:

a) Describe the major stages of a multimedia project and explain the importance of each stage. (14 marks)

b) Explain the creativity and organisational skills aspects of a multimedia project planning and development. (6 marks)

Question 8:

a) Define multimedia authoring and mention any three multimedia authoring tools, giving a function of each. (8 marks)

b) Describe any four features of authoring tools.
(8 marks)
c) List any two examples of presentation tools.
(4 marks)

Question 9:

a) Explain any three programming features supported by multimedia authoring systems.
(9 marks)
b) Describe the three levels of interactivity provided by authoring tools.
(6 marks)
c) State any two playback or media-support features provided by authoring software.
(5 marks)

Question 10:

Explain any five Key concepts in multimedia ethics, highlighting why each is necessary in the digital multimedia world today (20 marks)

Question 11:

(a) Explain four reasons why multimedia applications are considered technically challenging. (12 Marks)

(b) Identify and describe four forces driving the multimedia revolution. (8 marks)

Question 12:

(a) Distinguish between discrete media and continuous media, giving two examples of each (6 marks)

(b) Explain the meaning of a pixel and discuss how pixel values represent brightness in digital images. (4 marks)

(c) Describe any five image editing tools (10 marks)