



(Knowledge for Development)

KIBABII UNIVERSITY COLLEGE

**A CONSTITUENT COLLEGE OF
MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY**

UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF COMP SCIENCE

COURSE CODE: CSC 421

COURSE TITLE: MULTIMEDIA TECHNOLOGIES

DATE: 5TH MAY, 2015

TIME 8.00-10.00AM

INSTRUCTIONS TO CANDIDATES

Answer Question One in Section A and Any other **TWO** (2) Questions in Section B

TIME: 2 Hours

APRIL 2015

Instructions to candidates:

This paper consists of FIVE Questions.

Answer Question ONE [30 Marks] and any other TWO Questions [20 Marks Each].

Write your college number on the answer sheet.

This paper consists of 3 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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SECTION A

Question 1: [30 MARKS] Compulsory

- a)
- i. How does the human eye sense colour? What FOUR characteristics of the human visual system can be exploited for the compression of colour images and video? (4 Marks)
 - ii. Differentiate between GIF image and JPEG image (6 Marks)
 - iii. State any FOUR applications of Hypermedia (4 Marks)
 - iv. Define the term MIDI (2 Marks)
- b)
- i) Describe the two voice compression techniques (6marks)
 - ii) Describe Four basic characteristics of a Multimedia system (8 Marks)

SECTION B: Answer any Two Questions from this section

Question 2: [20 Marks]

- i) Differentiate between Analog-to –digital converter and digital to analog converter. (2 Marks)
- ii) Describe the acronyms DVI/HDMI? (4 Marks)
- iii) Explain the SEVEN Factors Contributing towards the development of Multimedia Technology (14 Marks)

Question 3: [20 Marks]

- a) Mr. Waswa is planning to gift a digital album to his daughter on her birthday. All the images have lots of colour shading and are all static images. Which of the following formats are best suited for this purpose
- i) GIF
 - ii) JPEG
 - iii) AV
- Justify your choice. (2Marks)
- b) Describe synchronized multimedia integration language (4Marks)
- c) Describe THREE challenges of multimedia technology (6 Marks)
- d) i) What is the key difference between I-frames, P-frames and B-frames in MPEG-2 video compression? (3 Marks)

ii) Give the advantages and disadvantages of using B-frames. (5 Marks)

Question 4: [20 Marks]

- a) Describe the FIVE layers of multimedia framework architecture (10 Marks)
- b) Describe FIVE desirable features of a multimedia system (10 Marks)

Question 5: [20 Marks]

- a) Describe FIVE application areas of Virtual reality in the 21st Century (10 Marks)
- b) Briefly outline the MPEG-4 structured audio standard. (10 Marks)