**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**(A Constituent College of JKUAT)**

(A Centre of Excellence)

# Faculty of Engineering & Technology

**DEPARTMENT MECHANICAL & AUTOMOTIVE ENGINEERING**

**UNIVERSITY EXAMINATION FOR:**
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BS.IT M12)

**ICS 2303: MULTIMEDIA SYSTEMS**

END OF SEMESTER EXAMINATION
**SERIES:** DECEMBER 2012
**TIME:** 2 HOURS

**Instructions to Candidates:**
You should have the following for this examination
- *Answer Booklet*

This paper consist of **FIVE** questions
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

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**Question One (Compulsory)**

**a)** Explain any **FOUR** reasons for compressing a file. **(4 marks)**
**b)** Explain the difference between the following terms:
- **(i)** Inter-object Synchronization" and Intra-object Synchronization"
- **(ii)** "Hypertext" and "Hypermedia"
- **(iii)** "Virtual Reality and "Virtual Environment" **(12 marks)**

**c)** Explain the difference between the following terms:
- **(i)** "Lossless Compression" and Lossy Compression" techniques
- **(ii)** "JPEG" and "MPEG" standards **(8 marks)**

**d)** Explain the following terms:
**(i)** Multimedia Information Systems
**(ii)** Virtual Reality Modeling Language **(6 marks)**

**Question Two**

a) Explain the role of multimedia in the following areas:
(i) Entertainment and Fire Arts
(ii) Education
(iii) Industry
**(iv)** Medicine **(8 marks)**

b) Describe any **FOUR** types of media used in multimedia application, stating an example of suitable application software in each case. **(12 marks)**

**Question Three**

a) Explain the following terms as used in digital video editing.
(i) Rendering
(ii) Lip synchronization **(4 marks)**

b) Explain any **FOUR** types of hybrid data compression techniques. **(8 marks)**
c) Describe any **FOUR** types of virtual realities. **(8 marks)**

**Question Four**

a) State any **FOUR** technological advancements that are driving multimedia revolution**. (4 marks)**

b) There are two major components of a three-dimensional virtual reality movement stereoscopy. Explain these **TWO** components. **(4 marks)**

c) Explain the FOUR major modules of multimedia information systems. **(8 marks)**

**Question Five**

a) Describe the following virtual reality components.
(i) Input devices **(4 marks)**
(ii) Output devices **(4 marks)**
(iii) Software **(2 marks)**

b) Explain the application of virtual reality in the following areas:
(i) Process control
(ii) Visualization
(iii) Design and prototyping
(iv) Telepresence
(v) Training pilots **(10 marks)**