



NATIONAL OPEN UNIVERSITY OF NIGERIA

Plot 91, University Village Cadastral Zone, Nnamdi Azikiwe Express Way, Jabi-Abuja.

FACULTY OF SCIENCE Course Code: CIT891

Course Title: Advanced Multimedia Technologies

Credit Unit: 3units

Instruction: Answer Question one and any other two **Time:** 2¹/₂ hrs

Question One

- 1a) What is a histogram? (2marks)
- Q1b) Briefly explain the following terms: (2marks)
- Q1c) Explain the meaning of multimedia technology (2marks)
- Q1d) States any three likelihood of compatibility between different encoders and decoders. (7marks)
- Q1e) Explain the Nyquist sampling theorem, with reference to the sampling rate. (5marks)
- Q1f) With the aim of the clear diagram only, Explain the Analog to digital signal conversion Source. (6marks)

Question Two

- Q2a) Define a Multimedia Workstations. (3marks)
- Q2b) Explain with examples Input Devices and Output Devices. (8marks)
- Q2c) Enumerate the features for multimedia systems? (4marks)

Question Three

- Q3a) Mention two popular methods used for Analog to-digital conversion. (2marks)
- Q3b) State any two components of multimedia. (2marks)
- Q3c) Outline and describe four (4) desirable features of a Multimedia System. (4marks)

Question Four

Q4a) The eye is a visual system that makes use of certain colour source properties, briefly describe these properties. (4marks)

Q4b) Using a suitable, well labelled diagram, discuss the decoder design. (9marks)

Question Five

Q5a) Below table shows the number n_i of grey values, use the table to draw a 4-bit grey scale image histogram.

| | | | | | | | | | | | | | | | | |
|----------------|----|---|---|---|---|----|-----|----|----|----|----|----|----|----|----|----|
| Grey level i | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| n_i | 15 | 0 | 0 | 0 | 0 | 70 | 110 | 45 | 70 | 35 | 0 | 0 | 0 | 0 | 0 | 15 |

(6marks)

Q5b) Enumerate and explain four main properties of a colour source that the eye makes (4marks)