



**EAST AFRICAN SCHOOL OF AVIATION  
EXAMINATION**

**END TERM I**

**ENGINEERING SECTION**

**SUBJECT: DATA NETWORK**

**STREAM: Module III (Airframes & Engines, AVIONICS)**

**Duration: 3hrs**

**DATE 11/4/2014**

**TIME: 9.00-12.00PM**

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**INSTRUCTION TO CANDIDATES**

*Answer any ALL questions*

*Maximum marks for each part of a question are as shown*

**Q1. (25 MARKS)**

a) Explain any two features of the following transmission mode. Give an example for each mode

- i. Simplex
- ii. Half Duplex
- iii. Full Duplex

7Mks

b) Highlight any three features of the following transmission modes

- i. Asynchronous
- ii. Synchronous
- iii. Isochronous

6Mks

c) Using binary stream 01100010 represent it as;

- i. Asynchronous
- ii. Synchronous

10Mks

d) State and explain two factors affecting successful interpretation of signal

2Mks

**Q2. (20 MARKS)**

a) Define the following terms

- i. Unipolar
- ii. Polar
- iii. Data rate
- iv. Direct link
- v. Point to point transmission media

5Mks

b) With the aid of sketches for data 00110100010 describe the following digital to Analogue techniques.

- i. Amplitude Shift Keying (ASK)
- ii. Frequency Shift Keying (FSK)
- iii. Phase shift Keying (PSK)
- iv. Differential Phase Shift Keying (DPSK)
- v. Quadrature Phase Shift Keying (QPSK)

15Mks

**Q3. (25 MARKS)**

a) Differentiate between the following encoding schemes using data stream 0100110011

- i. Nonreturn to Zero-Level
- ii. Nonreturn to Zero-Inverted
- iii. Bipolar-AMI
- iv. Manchester encoding
- v. HDB3

15Mks

b) Draw a block diagram of a digital data system (both transmitter and receiver) and explain the use of the components

10Mks