LAGOS CITY POLYTECHNIC, IKEJA

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

DEPARTMENT OF ELECT/ELECT AND COMPUTER ENGINEERING

2016/2017 SEMESTER EXAMINATION

COURSE TITLE: ELECT MEASUREMENT & CONTROL IV **NO OF QUESTIONS : 6**

COURSE CODE: EEI 431 **TIME ALLOWED: 2 HRS**

FOR WHOM: HND YR I EE PT **INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS**

1. (a) (i) Explain with the aid of a diagram, Murray loop test of locating Earth fault in underground cable.

(ii) Murry loop test is performed to located on earth fault on one core of a 2 core cable 100m long. The other core is healthy and used to form the loop. At balance point, the resistance connectd to the faulty core was 4Ω. The other resistance arm has a value of 16Ω. Calculate the distance of the fault from the test end.

(b) Explain with the aid of a diagram the following earthing system

(i) TT system (ii) TN-S System (iii) TN-C-S System

2. (a) (i) List four advantages of digital instrument over analogue instrument

(ii) List two disadvantages of digital instrument.

(iii) Enumerate the advantages of in co-operating microprocessors in instrumentation system.

(b) (i) With the aid of a diagram explain digital voltmeter

(ii) Explain with the aid of the diagram thermo couple trenducers

3. (a) An electronic transducer is used to sense the electro static field that is produced between two condutor, place at a distance d apart by

$C = E_A$ Determine (i) Sensitivity of the transducer d

(ii) Resolution of the electro-static transducer.

(b) List three examples of the following classes of transducer

(i) Electro static transducers (ii) Photo electric transducers

(iii) Electro magnetic transducers (iv) Electro-Acoustic transducer.

4. (a) Explain with the aid of a diagram the principle of operation of mechanical or pieze-electric transducers

(b) A piezoelectric senser has thickness of 0.7mm, a length of 0.8mm and breath of 0.75mm when the voltage is increase from 1v to 4.5v. Calculate the range of forces the transduer can be used to monitor.

5. Describe transducers and list its characteristics.

6. (a) (i) Explain the use of transducer in Control System

(ii) With the aid of a diagram, explain instrumentation system.

(b) A thermister has a resistance of1000 at 40^{o}C and a resistance of 100Ω at 50^{o}C.