

**LAGOS CITY POLYTECHNIC, IKEJA**  
**SCHOOL OF ENGINEERING AND APPLIED SCIENCE**  
**DEPARTMENT OF ELECT/ELECT AND COMPUTER ENGINEERING**  
**2018/2019 SEMESTER EXAMINATION**

<b>COURSE</b>	<b>TITLE:</b>	<b>ELECTRICAL/ELECTRONIC</b>
	<b>INSTRUMENTATION I</b>	<b>NO OF QUESTION : 6</b>
<b>COURSE CODE:</b>	<b>EEC 126/EEC 128</b>	<b>TIME ALLOWED: 2 HRS</b>
<b>FOR WHOM:</b>	<b>ND YR 1</b>	<b>PT</b>
<b>ANSWER</b>	<b>CE, EE</b>	<b>INSTRUCTIONS:</b>
		<b>ANY</b>

**4 QUESTIONS**

1. (a) In a laboratory experiment, the following results were recorded
 

Ammeter	Reading =	70mA
Voltmeter	Reading =	240v
Power	Factor =	0.7
Output	power =	10kw

Calculate the efficiency of the machine
- (b) An energy induction type wattmeter was installed to record the following materials five 80w lamps and three 200w lamp which were left to run for 8 hours, calculate the energy consumed and the rate of consumption when the price is N5/kwh.
2. (a) With the aid of a diagram, explain wheatstone bridge and its working principles.  
 (b) If  $z_2 = 100\Omega$ ,  $z_3 = 200\Omega$  and  $z_4 = 400\Omega$ , determine the value of  $z_x$  in an AC bridge  
 (c) Mention and explain five(5) types of laboratory measuring instrument.
3. (a) Explain the Instrument Wattmeter  
 (b) With the aid of a diagram, state how an Ammeter and a Voltmeter can be connected to a load.  
 (c) The reading of a multimeter reads 19v on a full scale of 0-50v when the Range selector was set to a range of 0-10v. Determine the reading of the measurement.
4. (a) State and explain three(3) common types of errors  
 (b) In a tabular form state the difference between Analogue and Digital Instrument  
 (c) Explain the following an Analogue Meter  
 (i) Deflecting Torque (ii) Controlling Torque (iii) Damping Torque
5. (a) State the operation of a dynamometer, support your answer with a diagram.  
 (b) A dynamometer type wattmeter with its voltage coil connected across the load side of the instrument read 250w. If the load voltage is 200v, what power is being taken by the load?  
 If the voltage coil branch has a resistance of  $2000\Omega$ .  
 (c) sketch an instrument showing its point on 3.5v on a scale of 0.5v
6. (a) Sketch the block diagram of a CRO and state the function of each blocks.  
 (b) Draw and label a cathode Ray Tube