



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF PURE AND APPLIED SCIENCES
2020_1 SEMESTER EXAMINATION

COURSE CODE: PHY 391
COURSE TITLE: LABORATORY PHYSICS II
CREDIT UNIT 2
TIME ALLOWED (2 HRS)
INSTRUCTION: *Answer question 1 and any other three questions*

QUESTION 1

- (a) Write four (4) characteristics of thermistors **10marks**
- (b) State the relationship between resistance and temperature **5marks**
- (c) Give the differentiation and integration equation of the resistor and capacitor in an Opamp. **5marks**
- (d) What is the current through an 8.0 Ohms toaster when it is operating on 120 V? **5 marks**

QUESTION 2

- (a) Define the following theorems:
(i) Thevenin (ii) Superposition Theorem (iii) Maximum power (4.5 marks)
- (b) List three apparatus used during maximum power theorem (4.5 marks)
- (c) Distinguish between passive and active network (6 marks)

QUESTION 3

- (a) State the equation for Faraday's law of induction and define the parameters in the equation. (10 marks)
- (b) What potential difference is required to pass 3.0A through 28 Ohms. (5 marks)

QUESTION 4

- (a) Highlight the difference between real and virtual image (3 marks)
- (b) What is parallax? (3 marks)
- (c) An object is placed 6 cm in front of a concave mirror of radius of curvature 8cm. Calculate the position and magnification of the image produced. (9 marks)

QUESTION 5

- (a) List three nature of the image of a real object formed by a diverging lens (4.5 marks)
- (b) List three uses of an Operational Amplifier (4.5 marks)
- (c) Briefly explain the under listed as applied to an Operational Amplifier
- (i) Single ended input single ended output inverting mode (3 marks)
- (ii) Single ended input single ended output non inverting mode (3marks)