



MACHAKOS UNIVERSITY

University Examinations 2020/2021 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF PHYSICAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (TELECOMMUNICATION AND INFORMATION
TECHNOLOGY)

SPH 204; APPLIED PHYSICS LAB 1

DATE: 18/8/2021

TIME: 8.30-10.30 AM

INSTRUCTIONS:

The examination is composed of section A and section B. Section A is theoretical and common to every student, but section B is practical and a student will select at random one of the four experiments learnt during the course.

SECTION A

1. Define the term capacitor and state the functions of a capacitor in an electric circuit?
2. State 3 types off capacitors
3. The data below was obtained in an experiment to determine capacitive reactance for a simple a.c capacitive circuit

V (rms) Volts	2	4	6	8	10	12	14	16
I (rms) Amps	0.2	0.6	0.88	1.18	1.477	1.77	2.06	2.36

- i. State the basic apparatus that were used to obtain the data above
- ii. Draw a simple circuit diagram which were used to obtain the above data
- iii. State the equation for a pure capacitor
- iv. From the data above, draw a graph of I against V
- v. Obtain the value of capacitance C from the graph
- vi. Obtain the capacitive reactance X_c of the circuit
- vii. State some of the applications of a capacitor
- viii. State why a non-electrolytic capacitor was used in this experiment

SECTION B

In this section, one of the four experiments learnt during the course are provided. You are required to perform the experiment and record your findings as per the instructions.