

**BOWEN UNIVERSITY, IWO OSUN STATE**  
**COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES**  
**PHYSICS PROGRAMME**  
**SECOND SEMESTER EXAMINATION 2022/2023 SESSION**

**PHY 104: PRACTICAL PHYSICS II**

**DATE: 20<sup>th</sup>, June 2023**

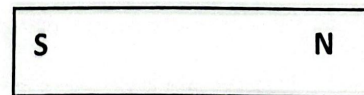
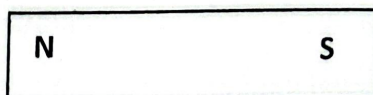
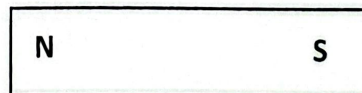
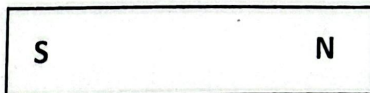
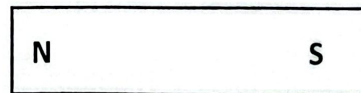
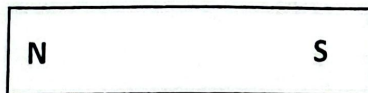
**CREDITS: 1C**

**TIME: 12-2pm**

**INSTRUCTION: ANSWER ALL QUESTIONS**

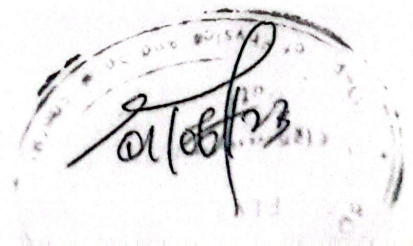
**QUESTION ONE**

- 1a. (i)** Define the Law of Poles 3marks  
**(ii)** List five (5) properties of the Magnetic Lines of Force 5marks
- b.** Sketch the magnetic field patterns around the arrangements of the following sets of bar Magnets shown in the figures below and indicate the directions of field with correct orientation of arrows.



4marks for each

- c. (i)** State the apparatus required in achieving the patterns drawn above 5marks  
**(ii)** Differentiate between magnetic and non-magnetic substance with examples 5marks



## QUESTION TWO

- 2a. (i) State Ohms Law 1mark
- (ii) (a) Differentiate between Ohmic and Non-ohmic conductors 3marks  
(b) Give two examples of each 3marks
- (iii) Two 3v cells are connected in series. The battery is connected to a  $2\Omega$  and a  $3\Omega$  resistor which are connected in parallel. If the internal resistance of the cell is negligible, calculate the current flowing in the circuit. 3marks
- b. An experiment was carried out in the laboratory to determine the resistance of a voltmeter using a voltmeter (0-3v), two (2) accumulators, a resistance box and a circuit key. The observations recorded were recorded as below:

**Table 1**

Resistance Box Reading ( $\Omega$ )	Voltmeter reading (v)	$v^{-1}$
500.00	2.60	
1000.00	2.30	0.33
2000.00		0.53
3000.00	1.60	
4000.00	1.40	
5000.00		0.91

- i. Complete the table above 5marks
- ii. Plot a graph of values of the R ( $\Omega$ ) against  $V^{-1}$  10marks
- iii. Determine the slope and intercept 6marks
- iv. State two (2) valid precautions that must be taken to obtain the best result from the graph. 2marks