الجامعة الوطنية
National University
Science & Technology للعلوم والتكنولوجيا
كلية عمان البحرية الدولية
International Maritime College Oman

ACADEMIC YEAR 2023 - 2024

Program	Year	Semester	Paper
ME	3	1	Mid Term

MODULE NAME:	**ELECTROTECHNOLOGY-III**		
MODULE CODE:	**MELECTRO-III**	**EXAM DATE:**	**05.11.2023**
INSTRUCTOR's NAME:	**Dr.Abdul Hameed Kalifullah**	**DURATION:**	**1.5 hrs.**

Questions to be answered on:	**Allowed tools:**	**Number of pages**
✓ Space provided on the question paper	Pen, Pencil & Calculator	(Incl. cover page): **5**

Points of attention:

- For each question, the maximum earned points are mentioned between brackets at the end of each question.
- Write very clearly! Answers that are not readable are not marked and don't get points!
- Make sure your answers are written to the point.
- All answers should be written **in English.**
- Write all the answers in **blue or black pen only.**
- Use the **pencil** only for **diagrams & graphs.**
- Show all the calculation steps in the given space.
- When finished submit the question paper, together with the answer scripts and the signed cover page to the invigilator.
- Any cheating/copying may result in an instant failing of the examination.

STUDENT NAME:

STUDENT ID:

FINAL MARKS	
	20
	10

Number of answer scripts:……..…….

Invigilator:……..……..…..

Student's signature: ……

Time of receipt:……..…..

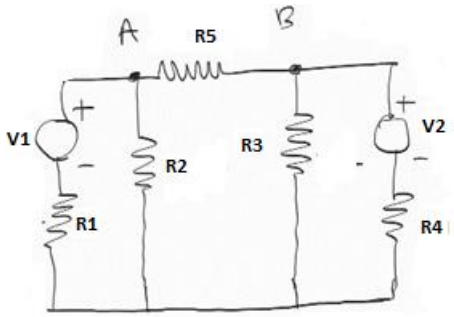
Answer All questions

1. In a marine power supply, bridge rectifiers are used to convert AC voltage to DC voltage for battery charging. Draw the bridge rectifier circuit and explain its working. **[5 marks]**

2. For protecting semiconductor devices Zener diodes are often preferred over normal PN junction diodes. Compare their characteristics and give two reasons for using Zener diodes. **[5 marks]**

3. Voltage multiplier circuits can be used onboard ships to generate high DC voltages from the main AC supply for equipment like cathode ray oscillscopes. Explain the working of a voltage tripler circuit with a diagram. **[4 marks]**

4. In a DC power distribution panel of a crago ship , the resistances of the branch circuits are connected as shown below. Simplyfy the circuit across the terminals AB using thevenin's principle and calculate the parameters. Assume the values for the resistances R1-R5, V1 and V2 . Calculate the thevenin's current for the circuit. **[6 Marks]**



MLO & Bloom's Level of Complexity

Q #	MLO Addressed	Complexity Level	Mark	Remark
1	**MLO 1&2**	Application	**5**	
2	**MLO 1,2 &3**	Application / Analysing	**5**	
3	**MLO 1&2**	Application	**4**	
4	**MLO 1&2**	Application	**6**	