Meru university of Science and Technology

Electrical Engineering (Power Option) Level 6

ENG/CU/PO/CR/04/6

Demonstrate Understanding of Electronics

March/ April 2024

ASSESSORS INSTRUCTIONS

Ensure that all the materials and equipment are provided

The aim of the experiment is to study the working of diodes as a bridge rectifier with and without a filter capacitor

Materials required:

Transformer 12 V

Digital multimeter

Four PN diodes IN4007

One Resistor 4KΩ

One Capacitor 100µF

Connecting wires

Breadboard

This paper consists of 4 printed pages

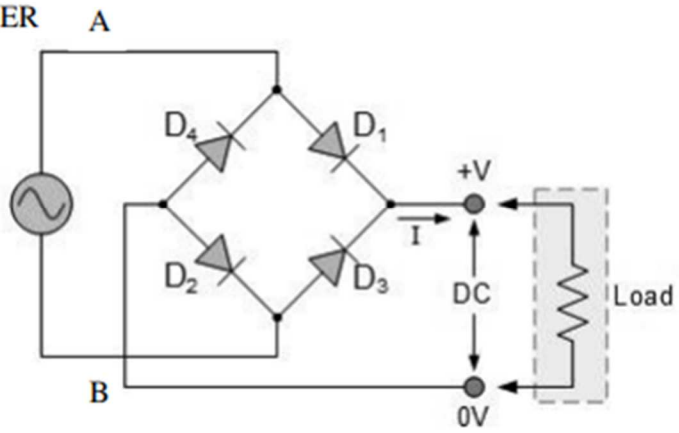
Assessor should check the tool to ascertain that all the pages are printed as indicated and that no question is missing

OBSERVATION CHECKLIST			
Candidate's name			
Candidates Registration number			
Assessors Name			
Unit of competency			
Date of assessment			
Items to be evaluated: *Tick as appropriate:* ***YES,*** *if the candidate performs the task correctly,* ***NO****, if the candidate did not perform the task correctly. Give a brief comment for item ticked* ***NO).***	**Marks available**	**Marks obtained**	**Comments**
1. Adhered to prescribed safety as per workplace procedures • Wore PPEs (overall and safety boots). • Observed electrical safety (no loose connections at the power outlets, proper protection of the distribution board) • Observed environmental safety (waste disposal, no spills on the floor, adequate ventilation and lighting)	**3**		
Task 1			
2. Identify all components required	**4**		
3. Listed tools used	**2**		
Sub-total	**6**		
Task 2			
4. Mounting of all components on the bread board	**10**		
5. Neatness	**4**		
Task 3			
6. Circuit operation	**10**		
7. Calculations to fill out table	**10**		
8. Waveforms i. Without filter ii. With filter	**10**		

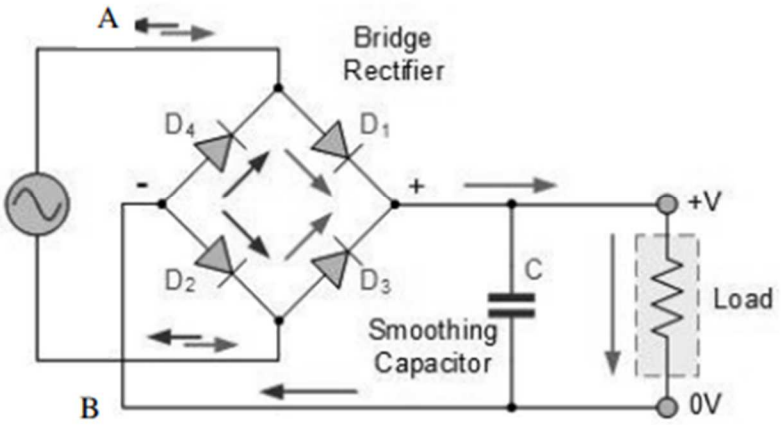
Grand total	**63**		
The candidate was found to be: Competent ☐ Not yet competent ☐ *(Please tick as appropriate)* ***(The candidate is competent if s/he gets 9(65%) of the 11 items on the observation checklist.***			
Feedback from candidate:			
Feedback to candidate:			
Candidate's signature:	**Date:**		
Assessor's signature:	**Date:**		

Comments by Assessor:

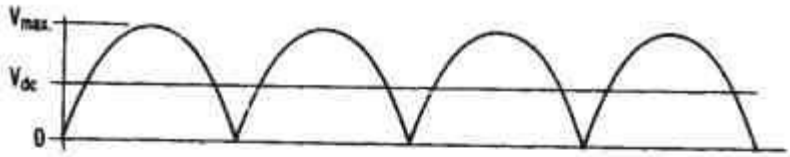
WITHOUT FILTER



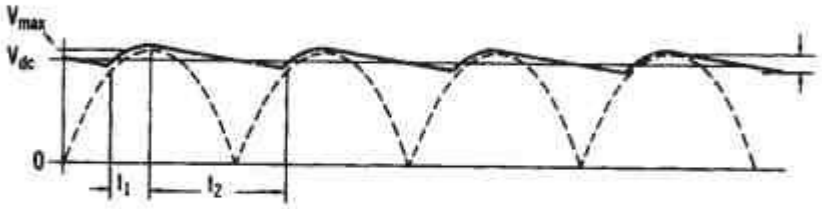
WITH FILTER:



Expected waveforms



(B) Full-wave output waveform with no filter capacitor.



(C) Full-wave output waveform with filter capacitor across load.