272-Q15

BCTHS MECHATRONICS TECHNOLOGY

NAME: _____ ***START DATE:*** _____/_____/_____
COMPLETION DATE: _____/_____/_____

TASK: Q-15 Diode Testing and Identification

PERFORMANCE OBJECTIVE: Given 20 diodes the student will identify and test them for defects with 100 % Accuracy

ENABLING OBJECTIVE: Practice testing diodes with a multimeter

TOOLS REQUIRED: Multimeter and Diodes

SAFETY FACTORS: Complete Q01-Q02 and observe all school/classroom safety rules at all times

ACADEMIC ANCHORS:
M11.A.1.1.2 Express numbers using scientific notation
R11.A.1.3.5 Demonstrate after reading understanding of non-fiction text
R11.A.2.1.2 Identify meaning of content specific words used in text

CAREER & WORK ANCHORS:
13.2.11.E Demonstrate essential workplace skills.

PERFORMANCE CHECKLIST:

STUDENT CHECK	***TASK TO BE COMPLETED***	***TEACHER SIGN OFF***
_____	1. Identify academic anchors and complete learning guide AA01	_____
_____	2. View video @https://www.youtube.com/watch?v=nQpXBHEn09A	_____
_____	2. Read safety and info sheets	_____
_____	3. Cross-reference diodes @ https://www.nteinc.com/quickcross/	_____
_____	4. Practice testing diodes using a D.M.M.	_____
_____	5. Complete diode test.	_____

PERFORMANCE LEVEL:
MASTERY SATISFACTORY FAMILIARIZATION INSTRUCTED/CANNOT PERFORM

BUCKS COUNTY TECHNICAL SCHOOL – August 25, 2021

_____
INSTRUCTOR'S SIGNATURE

INFORMATION SHEET

Safety Reminders

When testing electronic equipment, there is always a danger present. Unexpected high voltages can be present at unusual locations in defective equipment. The technician should become familiar with the device that he is working on and observe the following precautions.

1. When making test lead connections to high voltage points, remove the power. If this cannot be done, be sure to avoid contact with other equipment or metal objects. Place one hand in your pocket as a safety precaution and stand on an insulated floor to reduce the possibility of shock.

2. Discharge filter capacitors before connecting test leads to them. Capacitors can store a charge that could be dangerous to the technician.

3. Be sure your equipment is in good working order. Broken or frayed test leads can be extremely dangerous and can expose the technician to dangerous potentials.

4. Remove the test leads immediately after the test has been completed to reduce the possibility of shock.

5. Do not work alone when working on energized circuits. Always have another person close by in case of an accident. Remember, even a minor shock can be the cause of a more serious accident, such as falling against the equipment, or coming in contact with high voltages.

PERFORMANCE SHEET

1. Get 20 diodes from your instructor. Test them using a digital multimeter. Show the instructor your results.

2. Get a chassis from your instructor and identify the following components.

1. L.E.D.
2. Diode/Rectifier
3. Germanium or small signal diode
4. Zener diode
5. L.E.D. display
6. Bridge diode
7. Anode
8. Cathode

3. Draw the schematic symbols for the following diodes:

Diode

Zener diode

Varactor diode

SCR – Thyristor

L.E.D.

Bridge rectifier

Using the NTE semiconductor cross reference guide, substitute the following devices and list the following specifications.

Original Diode#	NTE #	PIV or PRV Rating	Forward Current Max-Average	Function/ Description
Example	552	600v	1 Amp	High speed Rectifier
1N5315				
1N5190				
1N3914				
1S2230				
1N22				
1N4007				
1N4001				
1N4006				
1N5412				
Zener Diodes	NTE #	Wattage Rating	Avalance or rated Voltage	Function
Example 1N3826	5270A	50 watt	36V	Zener diode
1N4750				Zener diode
1N4752				Zener diode
1N4759				Zener diode
1N4762				Zener diode
1N5088				Zener diode
1N5122				Zener diode
1S215				Zener diode
1N5949				Zener diode
1Z12				Zener diode
1Z18				Zener diode

GRADING RUBRIC

	Instructed/Cannot 0 points	Familiarization 1 point	Satisfactory 2 points	Mastery 3 points
Safety	Student rarely follows industry standard safety rules	Student needs to be frequently reminded to follow industry standard safety rules	Follows all industry standard safety rules, but required one reminder.	Student always follows all industry standard safety rules
Task	Student is unable to complete task	Student requires frequent assistance to complete task, and/or is familiar with some parts of the task	Student requires very little assistance to complete task, or has only completed task once or twice, but completed it satisfactorily with little to no assistance	Student can perform task with no assistance and has completed the task many times with no errors.

Mastery = 6 points
Satisfactory = 4-5 points
Familiarization = 2-3 points
Instructed cannot perform = <2 points