American International University- Bangladesh (AIUB)
Faculty of Engineering

Course Name :	Electronic Devices	Course Code:	EEE 2103
Semester :	Spring 2020-21	Section:	
Faculty :			

Assignment No :	1
Assignment Name :	CO2 (POI: P.a.3.C3)

Student Name:		Student ID:	

Submission Date:		Due Date :	

Marking Rubrics (to be filled by Faculty):

Problems	Excellent [5]	Proficient [4]	Good [3]	Acceptable [2]	Unacceptable [1]	No Response [0]	Secured Marks
Problem 01	Detailed unique response explaining the concept properly and answer is correct with all works clearly shown.	Response with no apparent errors and the answer is correct, but explanation is not adequate/unique.	Response shows understanding of the problem, but the final answer may not be correct.	Partial problem is solved; response indicates part of the problem was not understood clearly.	Unable to clarify the understanding of the problem and method of the problem solving was not correct.	No Response	
Problem 02	Detailed unique response explaining the concept properly and answer is correct with all works clearly shown.	Response with no apparent errors and the answer is correct, but explanation is not adequate/unique.	Response shows understanding of the problem, but the final answer may not be correct	Partial problem is solved; response indicates part of the problem was not understood clearly.	Unable to clarify the understanding of the problem and method of the problem solving was not correct	No Response	
Comments						Total marks (10)	

Problem 1

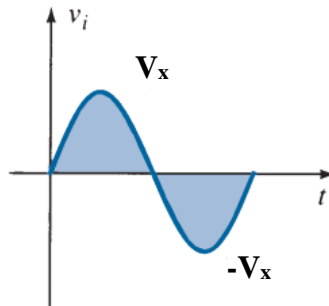Consider that the input shown in the below figure (here V_x = **ID** V). [5]

Fig. 1

Apply the knowledge gained from diode theories to **construct a circuit** which satisfies the following conditions and **sketch the output voltage** of the constructed circuit. Please explain how your circuit works and state your reasoning for your choice of circuit.

Design Criteria:
1) Only regular diodes (choose between Ge, Si, GaAs) and resistors can be used to construct the network.
2) During positive half cycle, output $V_O = (V_i – 1.2 \text{ V})$
3) During negative half cycle, output $V_O = 0$ V
4) Diode Peak inverse voltage = V_x

Problem 2

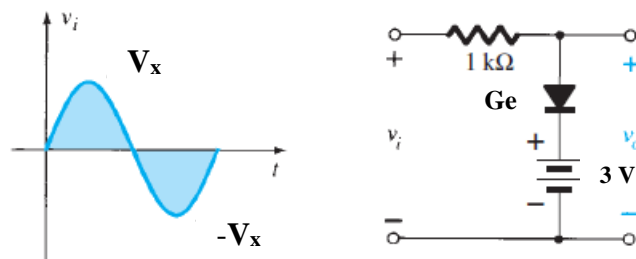Consider that the input shown in the below figure (here V_x = **ID** V). [5]

Fig. 2

Apply the knowledge gained from diode theories, **determine V_o curve** and explain the operating principle of the circuit shown in Fig. 2.