

International Islamic University Chittagong (IIUC)

Department of Electronic and Telecommunication Engineering

Midterm Exam

Program: B.Sc (Engg.)
 Course Code: ETE-1245
 Total Marks: 30

Semester: Autumn2024
 Course Title: Basic Electronics
 Time: 1.5Hours

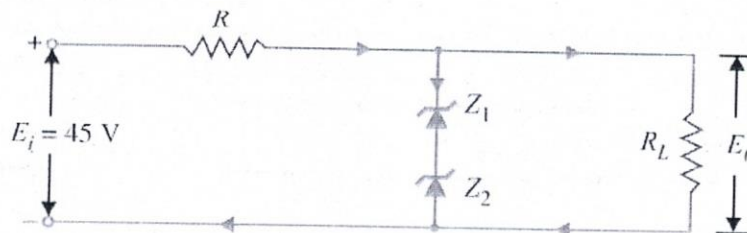
- [(i) Answer all the questions. The figures in the right-hand margin indicate full marks.]*
- [(ii) Course Learning Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.]*

Course Outcomes (COs) of the Questions						
CLO1	Apply knowledge of Basic Electronics to distinguish schematic symbol and recognize basic concepts of electronic components and circuits.					
CLO2	To analyse the functionality of various devices including several types of Diodes, BJT and FET through problem analysis					
Bloom's Levels of the Questions						
Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

- Q1 (a) What is energy band? Describe the important energy band in Solids. 5 CLO1 R
- (b) Give the mechanism of current flow in a forward biased pn junction. 5 CLO1 An
- Q2 (a) A full-wave rectifier uses two diodes, the internal resistance of each diode may be assumed constant at 20Ω . The transformer r.m.s. secondary voltage from centre tap to each end of secondary is 50 V and load resistance is 980Ω . Find :
- (i) the mean load current
- (ii) the r.m.s. value of load current
- (b) Explain the resistance of crystal diode. 3 CLO1 An
- (c) What is filter circuit? Explain the types of filter circuit. 4 CLO1 U

OR

- Q2 (a) 3 CLO1 Ap

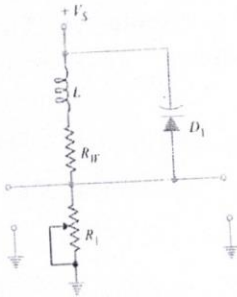


The circuit of fig uses two zener diodes, each rated at 15 V , 200 mA . If the circuit is connected to a 45-volt unregulated supply, determine :

- (i) The regulated output voltage
- (ii) The value of series resistance R
- (b) How to work zener diode as voltage stabiliser. 3 CLO1 C
- (c) Explain clamper & clipper with the types. 4 CLO1 U

- Q3 (a) Explain the photodiode with operation.
 (b) Write the application & advantage of LED.
 (c)

4 CLO2 An
 3 CLO2 Ap
 3 CLO2 E



The LC tank circuit shown in Fig has a 1 mH inductor. The varactor has capacitance of 100 pF when reverse bias is 5V d.c. Determine the resonant frequency of the circuit for this reverse bias.