



Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering

Mid Term Examination, Fall 2025

Course Code: CSE215 Course Title: Electronic Devices and Circuits

Level:2 Term:1 Batch: 67

Time: 01:30 Hrs

Marks: 25

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	a)	Mention the types of transistor configurations used in circuits.	CO1 5x1=5
	b)	State the negative temperature coefficient of resistance property of semiconductors.	
	c)	Recall the purpose of using a clipper circuit in waveform shaping.	
	d)	List the advantages of silicon compared to germanium for making semiconductor devices.	
	e)	Define Ripple Factor.	
2.	a)	Explain with circuit and waveforms how a Full-wave bridge rectifier converts AC into pure DC.	CO2 4x2=8
	b)	Explain the working principle of NPN and PNP transistor in detail.	
3.	a)	The two semiconductor diodes used in a rectifier circuit have forward resistance which can be considered constant at $0.1\ \Omega$ and infinite reverse resistance. They supply a mean current of 10 A to a resistive load from a sinusoidally varying alternating supply of 20 V (RMS). Solve for: i) The resistance of the load ii) The efficiency of the circuit	CO3 4x3=12
	b)	In the laboratory, you are provided with a 72 V DC power supply, 16 V Zener diodes, series resistors of $2\ \text{k}\Omega$, and a load resistor of $4\ \text{k}\Omega$. You are required to design a voltage stabilizer to provide a stable voltage of approximately 48 V for a sensitive device using only the available Zener diodes, resistors, and power supply. Also, Solve for (i) the output voltage (ii) the voltage drops across series resistance and (iii) the current through the Zener diode.	

c) The transistor shown in figure 1 is of silicon and has $\beta = 150$
Solve for:

- i. Base Current, I_B .
- ii. Collector Current, I_C
- iii. Collector-Emitter Voltage, V_{CE} .

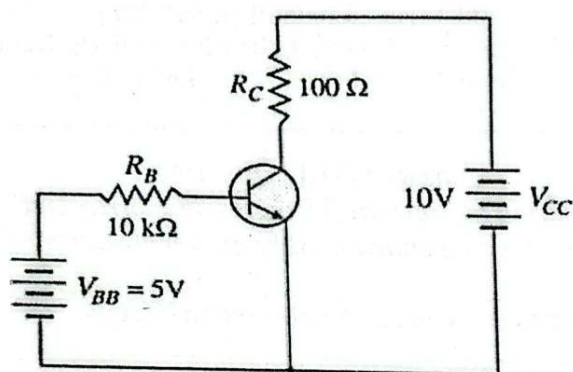


Fig. 1

Good Luck!