

Enroll No

Q. P. Code

UT 2928

Day & Date: Monday 11/08/2025

Time : 11:45 To 12:45

Max Marks- 25

Instructions: 1. All questions are compulsory.

2. Figures in rounded () brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.

3. CO is the index number of the Course Outcome statement.

4. The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.

5. Assume suitable data if necessary.

6. Use of non-programmable calculator is allowed.

Solve the Following

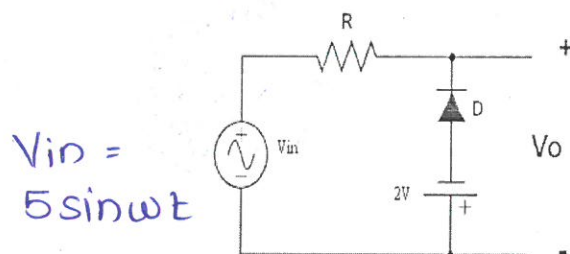
Mark BL CO

Q.1 A i. State & define Waveshaping circuits (1M)

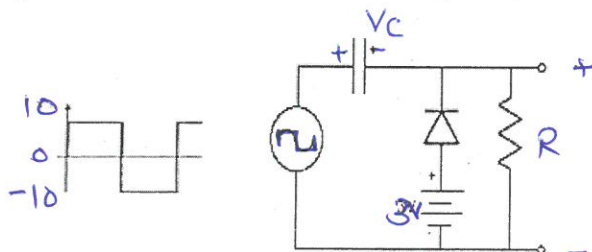
7M L2 CO1

ii. Analyze the circuit and sketch the output waveform (3M)

L4 CO2



iii. Analyze the circuit and sketch the output waveform (3M)



B The diode current is 0.6 mA when the applied diode voltage is 400 mV, and 20 mA when the applied diode voltage is 500 mV. Determine ideality factor η . Consider Thermal voltage $V_T = 26$ mV.

6M L3 CO2

OR



- B Calculate V_{DC} , V_{rms} , PIV, Ripple factor & Efficiency of Full Wave Bridge Rectifier if an A. C. supply of 230V, 50Hz is applied to the circuit through a transformer of turns ratio 10:1 and load of $1k\Omega$ is connected. 6M L3 CO2

- Q.2 A Derive the relation between current gain α , β and γ for the transistor. 6M L3 CO1
- B The reverse leakage current of the transistor when connected in CB config. is $0.2 \mu A$ and it is $18 \mu A$ when same transistor is connected in CE config. Calculate I_C , I_E , α , β and γ . Take $I_B = 50 \mu A$. 6M L3 CO2

OR

- B Determine the base, collector and emitter currents and V_{CE} for given circuit for $V_{CC} = 10 V$, $V_{BB} = 4V$, $R_B = 200 k\Omega$, $R_C = 2 k\Omega$, $V_{BE} = 0.7V$ and $\beta = 200$. 6M L3 CO2

