



PRESIDENCY UNIVERSITY

BENGALURU

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Make-up Examinations – December 2025

Date: 27 – 12- 2025

Time: 01:00pm – 04:00pm

School: SOE	Program: B.Tech		
Course Code: EEE1001	Course Name: Fundamentals of Electrical and Electronics Engineering		
Semester: MK	Max Marks: 100	Weightage: 50%	

CO - Levels	C01	C02	C03	C04	C05
Marks	26	24	26	24	

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Distinguish between active and passive circuit elements.	2 Marks	L1	C01
2.	Write the relation between line and phase voltages in a delta connection.	2 Marks	L1	C01
3.	Write the equivalent resistance for resistors connected in series and in parallel.	2 Marks	L1	C01
4.	What is the function of a rectifier? Name its types.	2 Marks	L1	C02
5.	What do you mean by knee voltage of PN junction diode?	2 Marks	L1	C02
6.	State one difference between a transformer and a motor.	2 Marks	L1	C04
7.	List any two advantages of induction motors.	2 Marks	L1	C04
8.	Define α and β in BJT. State their relation.	2 Marks	L1	C03
9.	What is the pinch-off voltage in JFET?	2 Marks	L1	C03
10.	Draw the symbol of p-n-p bipolar junction transistor.	2 Marks	L1	C03

Part B

Answer the Questions.

Total Marks 80M

11.	a.	A series R-L-C circuit with $R = 10 \Omega$, $L = 0.1 \text{ H}$, and $C = 100 \mu\text{F}$ is connected to a 230 V, 50 Hz AC supply. Calculate: (a) Impedance (b) Current (c) Power factor.	10 Marks	L3	C01
	b.	Explain the concept of a parallel circuit. Describe its applications	6 Marks	L2	C01
	c.	List the advantages of using a parallel circuit in electrical systems.	4 Marks	L3	C01

Or

12.	a.	A 15Ω resistor is connected in series with 3 parallel resistors of 3Ω , 5Ω and 10Ω . If the current through the entire circuit is 8A, find current flowing through each resistor. Also, calculate the supply voltage.	10 Marks	L3	C01
	b.	Explain the concept of a series circuit. Describe its applications	6 Marks	L2	C01
	c.	List the advantages of using a series circuit in electrical systems.	4 Marks	L3	C01

13.	a.	Explain the working of a full-wave center type rectifier with circuit diagram and waveforms.	8 Marks	L3	C02
	b.	Explain the differences between metals, semiconductors, and insulators.	6 Marks	L2	C02
	c.	Describe the construction and working principle of clipping and clamping circuits using suitable circuit diagrams.	6 Marks	L2	C02

Or

14.	a.	Explain the working of a full-wave bridge rectifier with circuit diagram and waveforms.	8 Marks	L2	C02
	b.	Discuss the construction and working of a p-n junction diode.	6 Marks	L2	C02
	c.	Discuss the V-I characteristics of a p-n junction diode.	6 Marks	L2	C02

15.	a.	Explain the working principle of a DC motor.	10 Marks	L2	C04
	b.	List the applications of DC motor.	5 Marks	L3	C04
	c.	Explain the torque equation of a DC motor and define all the variables involved.	5 Marks	L2	C04

Or					
16.	a.	Explain the working principle of a Transformer.	10 Marks	L2	C04
	b.	List the applications of <i>Transformer</i> .	5 Marks	L3	C04
	c.	Explain the EMF equation of a DC motor and define all the variables involved.	5 Marks	L2	C04

17.	a.	Describe the construction, input and output characteristics of common emitter configuration.	10 Marks	L2	C03
	b.	Establish the relation between α and β ;	3 Marks	L2	C03
	c.	Calculate collector current (I_C) and emitter current (I_E) for a transistor that has a common base gain (α) of 0.98 and base current (I_B) is 100 μ A. Determine the common emitter gain (β) for the transistor.	7 Marks	L3	C03

Or					
18.	a.	Describe the construction, operation principle of n-channel enhancement type MOSFET.	10 Marks	L2	C03
	b.	Illustrate the circuit symbol of an N-channel enhancement mode MOSFET and label all its terminals	3 Marks	L2	C03
	c.	Explain the drain and transfer characteristics of enhancement mode MOSFET	7 Marks	L2	C03