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**Presidency University Bengaluru**

**SCHOOL OF ENGINEERING**

**SUMMER TERM**

**SUMMER TERM END-TERM EXAMINATION – AUGUST 2024**

**Semester**: SUMMER TERM

**Course Code**: ECE1001/ECE101

**Course Name**: ELEMENTS OF ELECTRONICS ENGINEERING

**Program &Sem**: B. Tech

**Date**: 06.08.2024

**Time**: 1:00 PM to 4:00 PM

**Max Marks**: 100

**Weightage**: 50%

**Instructions:**

1. ***Read the question properly and answer accordingly***
2. ***Question paper consists of 3 parts***
3. ***Scientific and non-programmable calculators are permitted***

**PART-A**

**Answer any FOUR Questions. Each question carries 5 marks. (4Qx5M=20M)**

Q1. Color coding of resistors helps in identifying the resistance value. Determine the resistance value if the color code is Red, Red, Red and Silver. [CO.1 Knowledge Level]

Q2. For the given circuit shown calculate the Current I. Evaluate the voltage drop across each resistor R1, R2 and R3.

 [CO.1 Knowledge Level]

Q3. Explain the various Diode Approximation Model with neat circuit diagram, parameters and graphs. [CO.1 Knowledge Level]

Q4. Define and bring-out the relationship between Alpha (CB-Configuration) and Beta (CE-Configuration) of a Transistor. [CO.2 Knowledge Level]

Q5. State and prove the 3-Variable De-Morgan’s Theorems. [CO.3 Knowledge Level]

**PART-B**

**Answer any FIVE Questions. Each question carries 10 marks. (5Qx10M=50M)**

Q6. For the Network shown below, calculate the value V1 and V3 by applying Kirchoff’s Law.



[CO.1 Comprehension Level]

Q7. Draw the V-I characteristics of PN Junction Diode and list the various Diode Parameters.

[CO.2 Comprehension Level]

Q8. Differentiate between Half Wave, Center-tapped Full Wave and Bridge Rectifier.

[CO.2 Comprehension Level]

Q9. Explain with neat diagram the working principle of Bipolar Junction Transistor-PNP Type. [CO.2 Comprehensive Level]

Q10. Implement the following Gates using NAND Universal and NOR Universal Gate:

1. NOT Gate
2. AND Gate
3. OR Gate
4. XOR Gate
5. XNOT Gate [CO.3 Comprehensive Level]

Q11. Implement the SOP Expressions using Basic Gates and NAND Gate:

1. Y1 = ∑ m ( 1, 2, 4, 7 )
2. Y2 = ∑ m (3, 5, 6, 7 ) [CO.3 Comprehension Level]

**PART-C**

**Answer any TWO Questions. Each question carries 15 marks. (2Qx15M =30M)**

Q12. a) For the circuit shown below calculate the value of Vo, I, ID1 and ID2.



[CO.1 Comprehension Level]

1. In a BJT the value of IE = 3mA and IB = 0.05mA. Find the value of Ic, Alpha and Beta.

[CO.2 Comprehension Level]

Q13. Explain the block diagram of Communication System. Define Modulation and need of Modulation. Explain the types of Modulation Techniques with relevant waveforms.

[CO.4 Comprehension Level]

Q14. Draw neatly the Architectural block diagram of 8086 Microprocessor. List the important Features of 8086 Microprocessor. [CO.4 Comprehension Level]