



ROLL NO:

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Weightage: 20 %

Max Marks: 40

Max Time: 1 hr.

Tuesday, 25th September, 2018

TEST – 1

Odd Semester 2018-19

Course: **ECE 101 Elements of Electronics Engineering**

I Sem. Chemistry Cycle

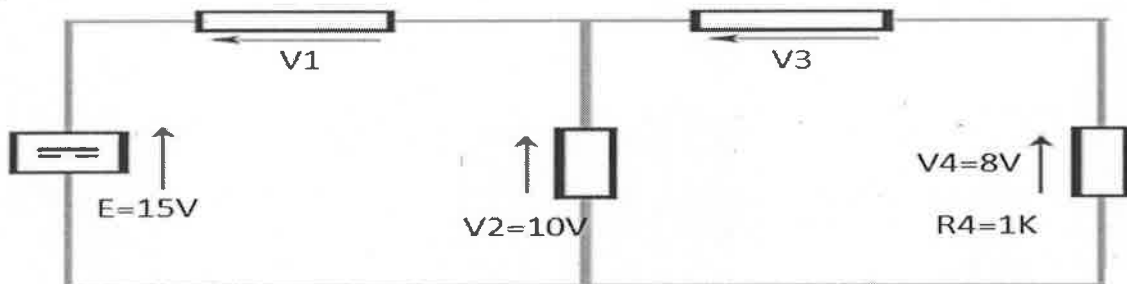
Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

(3 Q x 4 M = 12 Marks)

1. Draw the Energy Band Structure of materials and explain how to differentiate materials into Conductors Semiconductors and Insulators
2. For the circuit, identify the laws to be used and find V_1 , V_3 and I_4

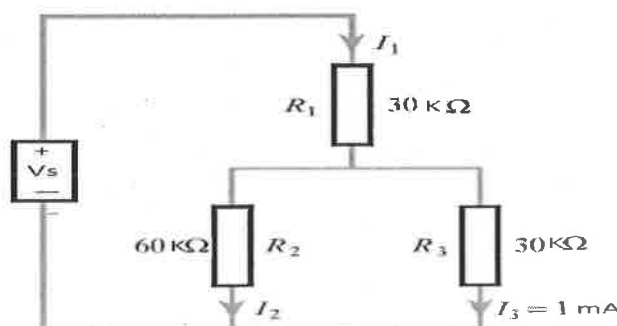


3. Name, state it and write the equation with circuit diagram for (a) the law which relates the voltage in a device with its current? (b) The law which discusses the Current values at a junction.

Part B

(2 Q x 8 M = 16 Marks)

4. For the network shown in Fig 1, identify and calculate all unknown electrical quantities



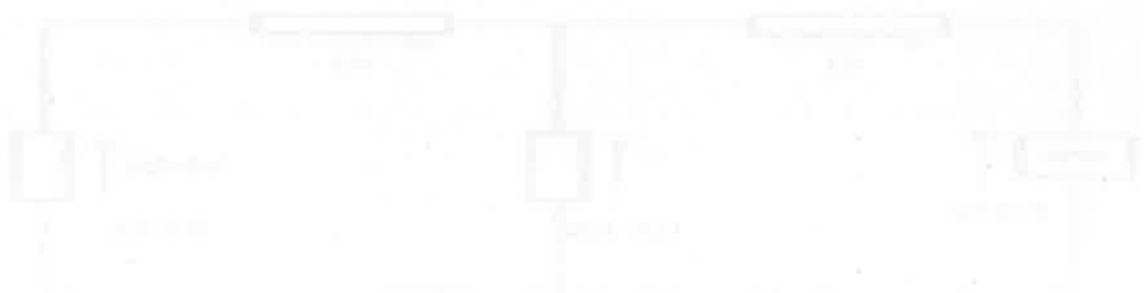
5. Draw the graphs and symbols for all three diode approximations and explain the same.

Part C

(1Q x 12 M = 12 Marks)

6. Explain

- (a) The method of drawing and usage of dc load line for diodes
- (b) How an ideal diode can be used to create Half Wave Rectifier circuit and its waveforms of Input and output voltages. Explain the working of the circuit





**PRESIDENCY UNIVERSITY,
BENGALURU**

SCHOOL OF ENGINEERING

TEST 2

Odd Semester: 2018-19

Course Code: ECE101

Course Name: Elements of Electronics Engineering

Branch & Sem: Chemistry Cycle & I-Sem

Date: 28 November 2018

Time: 1 Hour

Max Marks: 40

Weightage: 20%

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **four** marks.

(3x4=12)

1. Draw the symbols of NPN and PNP transistor.
2. If $\alpha = 0.98$; $I_E = 6\text{mA}$, Find all other values (I_B , I_C , β , γ).
3. What is Current amplification factor ' β '? Show that $\beta = \frac{\alpha}{1-\alpha}$.

Part B

Answer **all** the Questions. **Each** question carries **eight** marks.

(2x8=16)

4. Explain CE configuration with relevant circuit diagram and input-output characteristics.
5. Derive expression for output voltage (V_{dc}) for full wave rectifier.

Part C

Answer the Question. Question carries **twelve** marks.

(1x12=12)

6. a) Explain Transistor working as an amplifier.
- b) Explain DC load line and Q-Point for Fixed bias circuit.



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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

SET A

END TERM FINAL EXAMINATION

Odd Semester: 2018-19

Date: 10 January 2019

Course Code: ECE 101

Time: 2 Hours

Course Name: Elements of Electronics Engineering

Max Marks: 80

Programme & Sem: B.Tech (Chemistry Cycle) & I Sem

Weightage: 40%

Instructions:

- (i) **Use Your Own Calculators**
- (ii) **Assume Standard Values wherever required**

Part A

Answer **all** the Questions. **Each** question carries **five** marks.

(4Qx5M=20)

1. Convert $(1101101)_2 = ()_{10}$ and $(78)_{10} = ()_2 = ()_{16}$
2. Convert $(F843A)_{16} = ()_2$ and $(237)_{10} = ()_{16} = ()_2$
3. Write the steps for 1's complement and perform $(72)_{10} - (34)_{10}$ using 1's complement.
4. An 8085 Microprocessor has ___ bits of Address bus and can address ___ bytes of Memory. The Data Bus is ___ directional and the Address Bus is ___ directional. There are ___ number of flags used in the flag register.

Part B

Answer **all** the Questions. **Each** question carries **ten** marks.

(4Qx10M=40)

5. Write symbol, equations and truth tables of AND, OR, NAND, NOR and EX-OR gates
6. a. State and prove both Demorgans Laws
b. Simplify and implement the Boolean function $F(A,B,C) = \sum m(0,1,2,5,6,7)$ using AND-OR logic and NAND-NAND logic
7. Draw the Block Diagram and explain in detail the architecture of 8085 Microprocessor.
8. Perform the following
 - a. Subtract with 2's complement $(1101)_2 - (10000)_2$
 - b. Prove that NAND is a universal gate, i.e. it can give all 3 basic gate operations.

Part C

Answer **both** the Questions. **Each** question carries **ten** marks.

(2Qx10M=20)

9. a. Draw and explain the block diagram of communication system.

b. Explain Amplitude modulation with neat waveforms.

10. a. Explain the need for modulation.

b. For the following truth table identify min terms for each row, write Boolean expression, minimize and implement using AND-OR logic.

| A | B | C | Y |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 1 |



Roll No

**PRESIDENCY UNIVERSITY
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SCHOOL OF ENGINEERING

SET B

END TERM FINAL EXAMINATION

Odd Semester: 2018-19

Date: 10 January 2019

Course Code: ECE 101

Time: 2 Hours

Course Name: Elements of Electronics Engineering

Max Marks: 80

Programme & Sem: B.Tech (Chemistry Cycle) & I Sem

Weightage: 40%

Instructions:

- (i) **Use Your Own Calculators**
- (ii) **Assume Standard Values wherever required**

Part A

Answer **all** the Questions. **Each** question carries **five** marks.

(4Qx5M=20)

1. Convert $(1101111)_2 = ()_{10}$ and $(48)_{10} = ()_2$
2. Convert $(ABCD)_{16} = ()_2$ and $(546)_{10} = ()_{16}$
3. Explain the need for modulation.
4. Perform $(56)_{10} - (79)_{10}$ using 1's complement.

Part B

Answer **all** the Questions. **Each** question carries **ten** marks.

(4Qx10M=40)

5. Explain the architecture of 8085 Microprocessor.
6. Simplify and implement the Boolean function $F(A,B,C) = \sum m(6,7,6,3)$ using AND-OR and NAND-NAND logic.
7. a. Perform $(11011)_2 - (1011)_2$ using 2's complement.
b. Simplify the following Boolean expressions.
 - i) $Y = A' B' C' D' + A' B' C' D + A B' C' D' + A B' C' D$
 - ii) $Y = A B' C' + A' B' C' + A' B' + A' C$
8. What are the basic operations in Boolean algebra and also explain the theorems and properties of Boolean algebra.

Part C

Answer **both** the Questions. **Each** question carries **ten** marks.

(2Qx10M=20)

9. Explain the block diagram of communication system.
 - b. Explain frequency modulation with neat waveforms.
10. a. What are universal gates? Realize AND and OR gates using only NAND Gate.
 - b. Identify the corresponding gate given by the Boolean functions below; Draw its symbol and truth table.
 - i) $Y = AB' + A'B$ b. ii) $Y = A'B' + AB$