

REGENT UNIVERSITY
COLLEGE OF SCIENCE AND TECHNOLOGY



EXAMINATION PAPER

END OF SECOND SEMESTER EXAMINATION
LEVEL 100

COURSE: BASIC ELECTRONICS

DURATION: THREE HOURS

LECTURER: MR. RANSFORD ODOOM

Please Read ALL Instructions.

SECTION ONE

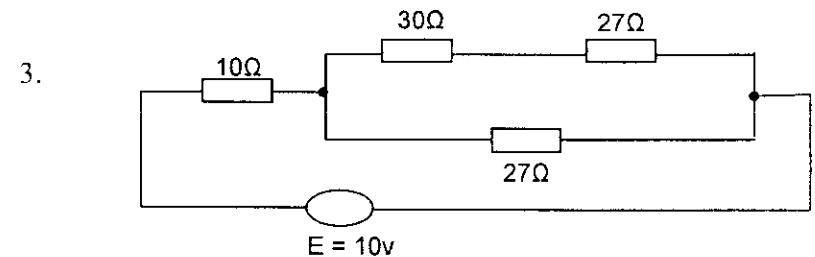
Attempt ALL Questions in this Section – (2 Marks Each)

1. What is the importance of the collector of a Transistor?
2. Describe the behavior of electrons of any mentioned particle.
3. State the Commutative, Associative and the Distributive Laws of Boolean Algebra.
4. What are the basic types of Field Effect Transistors commonly used in Electronics?
5. What are Octal Number Systems?
6. List any three forms of Transistor configuration.
7. What do you understand by Transistor Biasing?
8. Differentiate between Digital and Analog Integrated Circuits.
9. State the Demorgan's Theorem?
10. What is Monolithic Technology in terms of IC fabrication?

SECTION TWO

Attempt Any FIVE Questions in this Section – (10 Marks Each)

1. a) State the Kirchoff's First Law.
b) A 2V accumulator with an internal resistance of 1ohm and a 6V generator with an internal resistance of 2ohms both feed current into a load resistance of 5ohms. Calculate the current in each loop of the network and the total current in the load.
2. List and explain all the processes involved in the industrial manufacturing of Integrated Circuits.



In the circuit above, calculate the potential difference across.

- a) The 10Ω resistor
- b) The 30Ω and 27Ω resistors in parallel.

4.
 - a) What is Common Base Configuration of a Transistor?
 - b) In a Common Base Transistor Configuration, the input current is 20mA and the Collector Current is 350mA. Determine the Current Amplification Factor of the Transistor.
5. Explain and give two examples each of Intrinsic and Extrinsic Semiconductors.
6.
 - a) State three differences between Bipolar Junction Transistors and Field Effect Transistors.
 - b) Prove that $ABC + \overline{A}BC + A\overline{B}C = A(B + C)$.
 - c) State the DeMorgan's Theorem.
7. Explain Logic Gates and sketch the symbols of the Basic Logic Gates with their Truth Tables.