

NEW
Part-III 3-Tier
2016

ELECTRONICS

PAPER—VII

(Honours)

(PRACTICAL)

Full Marks : 100

Time : 6 Hours

The figures in the right-hand margin indicate full Marks.

Group—A

Answer any *one* question.

1. (a) Draw the circuit diagram of a two input 'AND' gate using discrete components.
Implement it on a bread board and draw its truth table.
- (b) Implement 'NOT' gate on a bread board using discrete components. Draw its truth table.
- (c) Using (a) and (b), implement a NAND gate and verify its truth table.

15+15+5

(Turn Over)

2. (a) Construct a full adder circuit using 'NOR' gates only on a bread board and verify its truth table.
- (b) Verify De-Morgan's theorem on the bread board. Record the data for different combination of input variables.
- 20+15
3. (a) Construct a 4:1 Multiplexer using fundamental gates. Verify its result on a bread board for different combination of select input.
- (b) Design a 2 to 4 decoder circuit from the above circuit and verify its result.
- 20+15
4. (a) Design a J-K flip-flop using NAND gates. Set up the circuit on a bread board and verify its truth table.
- (b) Convert the above J-K flip-flop into a T flip-flop and D flip-flop.
- 20+15
5. (a) Draw an asynchronous 4 bit decade up counter using J-K flip-flop and verify its results for 10 pulses.
- (b) Draw the suitable timing diagram.
- 30+5

Group—B

Answer any one question.

6. Draw an assembly language program to add two eight bit data taking from two different memory location and store the result to another memory location.
Verify your result for two set of data. 35
7. (a) Measure the input offset voltage and offset current of an OPAMP.
Draw the necessary circuits and record the data.
(b) Draw the offset null adjustment circuit and execute it. 20+15
8. Study the performance of a differential amplifier using an OPAMP. Draw the necessary circuits, Record input-output data and make a table. 35
9. Draw an astable multivibrator using transistors with a frequency of your choice and implement it on a bread board. Verify experimental and theoretical oscillating frequency. 35
10. Write an assembly language program to multiply two eight bit data using shift and add method and store the result in a specific memory location. 35

Marks Distribution :

	Marks
Experiment	: 35 + 35 = 70
Viva-voce	: 10 + 10 = 20
Laboratory Note Book	: 5 + 5 = 10
Total Marks :	<u>100</u>
