Please check that this question paper contains09	questions and02	printed pages within first ten
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[Total No. of Questions: 09]

[Total No. of Pages: 02]

Uni. Roll No.

Program: B.Tech.(Batch 2018 onward)

Semester:4th

Name of Subject: Digital Electronics

Subject Code: PCEE-105

Paper ID:16186

Scientific calculator is Allowed

MORINING

Time Allowed: 03 Hours

Max. Marks: 60

## NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part - A

[Marks: 02 each]

Q1.

- a) Prove that  $AB + ABC + A\overline{B} = A$
- b) What are shift registers? Give applications
- c) Which is the fastest analog digital converter and why?
- d) Comparison EPROM and EEPROM.
- e) Define demultiplexer.
- f) Convert hexadecimal number (4C8.2)<sub>16</sub> into its equivalent decimal number.

Part - B

[Marks: 04 each]

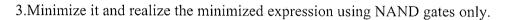
- Q2. Realize OR, AND, NOT, NOR gates using NAND gate only.
- Q3. Using K map realize the following expression using minimum number of gates.

 $Y=\Sigma m (1,3,4,5,7,9,11,13,15)$ 

- **Q4.** Write a short note on ring counter.
- Q5. Give classification of memories based on principle of operation.
- **Q6.** Describe the working of R2R ladder type D/A converter.
- Q7. Explain step by step the design of full adder using two half adder and one OR gate.

[Marks: 12 each]

- **Q8.** 1. Make a K map for the function  $f = AB + A\overline{C} + C + AD + A\overline{B}C + ABC$ 
  - 2. Express f in Canonical SOP form





or

Describe edge triggered JK Flip Flop with the help neat waveforms and truth table.

**Q9.** Explain the architecture and function of programmable arrays.

or

Draw the circuit of a dual slope A/D converter and explain its operation. Also write advantages and disadvantages.

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