Please check that this question paper contains___09___ questions and __02____ printed pages within first ten

[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

MORNING
19 SEP 2022

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 $(4C8.2)_{16}$ 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.

Part – C **[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

3.Minimize it and realize the minimized expression using NAND gates only.

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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