

S.B. Roll No.....

DIGITAL ELECTRONICS

3RD Exam/ECE/ETV/ECEII/Comp/CSc/EEE/0620/May'17

Duration: 3Hrs

M.Marks:75

SECTION- A

Q1. Do as directed:

15x1=15

- The numbers of levels in a digital system are _____.
- 1011 is a valid BCD number. (T/F)
- Binary code of gray code 1011_{gray} is _____.
- The expression $A.B$ represents _____ gate.
- The clear signal is same as reset signal.(T/F)
- The fastest ADC is _____.
- The maximum count in a 4-bit ripple counter is _____.
- To convert a JK flip-flop into T flip-flop, the inputs $J=K=$ _____.
- The condition $S=R=1$ is called as _____ condition.
- The complement of Boolean algebra AB . $(BC+AC)$ is _____.
- The radix of octal number is _____.
- The parity is used for error detection and correction. (T/F)
- _____ logic family has maximum fan-out.
- ASCII is a _____ code.
- A universal shift register can shift register left or right. (T/F)

SECTION- B

Q2: Attempt any six questions.

6x5=30

- Draw symbol and truth table of NOT, NAND and OR gate.
- Convert the following: **A)** $62_{16} \times 36_{16}$ **B)** $341_8 = (?)_{10}$
- Define noise margin, propagation delay and fan-out.
- Compare all logic families and their characteristics.
- Explain the operation of JK flip-flop using NAND gate.
- Explain dual slope A/D converter.
- Why universal shift registers are called universal? Explain.
- Draw and implement half adder.
- What are the applications of digital signal?

SECTION-C

Attempt any three questions

(3x10=30)

Q3. Simplify the given K-map and draw logic circuit using gates. $F(A,B,C,D) = \sum(0,3,6,7,9,13,14,15)$

Q4. Explain the working of 3-bit asynchronous counter.

Q5. Draw and explain BCD to decimal decoder. Give its applications also.

Q6. Write Short note on any two:

- 4-bit adder
- D/A converter
- Buffer register
- Latch and flip-flop