

SPPU-SE-COMP-CONTENT – KSKA Git

Total No. of Questions : 6]

SEAT No. :

PA-24

[Total No. of Pages : 2

[5931]- 34

S.E. (Computer Engineering)

DIGITAL ELECTRONICS AND LOGIC DESIGN

(2019 Pattern) (Semester - I) (210245)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume suitable data if necessary.

Q1) a) Simplify the expression $F(A,B,C,D) = \sum m (3,4,5,7,9,13,14,15)$ using the K-map method. [5]

b) Simplify the expression $F(A,B,C,D) = \pi M (0,1,4,5,6,8,9,12,13,14)$ using the K-map method. [5]

OR

Q2) a) Simplify the following logic function using the Quine-McCluskey minimization technique. [8]

$$Y(A,B,C,D) = \sum m (0,1,3,7,8,9,11,15).$$

b) Express the function $Y = AB + ACD$ in canonical sum of product form. [2]

Q3) a) Implement the following Boolean function using 8 : 1 multiplexer [5]

$$F(A,B,C,D) = \sum m (2,4,5,7,10,14).$$

b) Design 4 bit binary to gray code converter circuit using logic gates. [5]

OR

Q4) a) Explain the rules for BCD addition with suitable example and Design one digit BCD adder using IC 7483. [5]

b) How will you implement full adder using half adder? Explain with circuit diagram. [5]

P.T.O.

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- Q5) a)** Explain look Ahead carry generator in detail. [5]
- b)** Simplify the expression $F(A,B,C,D) = \sum m (1,3,7,11,15) + d(0,2,5)$ using the K-map method. [5]

OR

- Q6) a)** What do you mean by parity? Design 3 bit parity generator circuit using even parity bit. [5]
- b)** Minimize the following expression using the K-map with minimum hardware. [5]

$$Y = \sum m (1,5,6,7,11,12,13,15)$$

