Total No. of Questions : 4]

SEAT No. :

PE-535

[Total No. of Pages : 2

[6578]-8
S.E. (Electrical) (Insem.)
ANALOG AND DIGITAL ELECTRONICS
(2019 Pattern) (Semester - III) (203143)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagram must be drawn wherever necessary.***
4) ***Make suitable assumptions, if necessary.***

Q1) a) State De-Morgan's Theorem and using Boolean algebra prove the following. **[5]**

$$AB + CD = \overline{\overline{AB}.\overline{CD}}$$

b) With a neat Block diagram explain function of an Encoder and Decoder. Give its applications. **[5]**

c) Minimize the logic function in POS form by using K-map **[5]**

$f\ (A,\ B,\ C,\ D) = \Pi M(4,6,10,12,13,15)$

OR

Q2) a) Explain SOP and POS Form for Four Variable. **[5]**

b) Draw and explain full adder. **[5]**

c) Design a hazard free circuit in AND-OR Configuration for the logic function. **[5]**

$Y\ (A,\ B,\ C,\ D) = \Sigma m(1,3,5,7,12,13)$

Q3) a) What is the difference between combinational circuit and Sequential circuit. **[5]**

b) Define Synchronous and Asynchronous Counter and Explain 3-Bit Synchronous UP Counter. **[5]**

c) Explain the operation of 4-Bit Serial in Serial out shift register. **[5]**

P.T.O.

OR

Q4) a) Explain Different type of Shift Register with Applications. **[5]**

b) Design a synchronous MOD-6 Counter using T flip-flop. **[5]**

c) Draw and Explain Ring Counter. **[5]**

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