

## Module-1 ADE Model Question Paper III.

- 1a) Discuss LED parameters? 6M.  
b) Derive the eqns for Emitter-bias when BJT is in CE-mode? 8M.  
c) Explain opamp application as Active filter? 6M.

OR.

- 2a) Deduce the eqns for collector to base bias for CE configuration? 6M.  
b) Explain opamp application as Relaxation oscillator? 8M.  
c) Write a note on adjustable voltage regulator? 6M.

## MODULE-2

- 3a) Simplify using K-map  $F(A, B, C, D, E) = \sum m(0, 1, 4, 5, 13, 15, 20, 21, 22, 23, 24, 26, 28, 30, 31)$ ? 10M.  
b) Write SOP & POS for  $F(A, B, C, D) = \sum m(0, 2, 3, 4, 8, 10, 11, 15)$ ? 6M.  
c) Apply MEV method  $F(A, B, C) = \sum m(0, 1, 3, 5, 6)$ ? 4M.

OR

- 4a) Define essential prime implicant with example? 6M.  
b) Solve using Quine's method  
 $F(a, b, c, d) = \sum m(0, 3, 4, 5, 7, 9, 11, 13)$ ? 14M.

## MODULE-3

- 5a) Explain Hazards & its covers? 8M.  
b) Explain timing diagram for circuit with delay? 6M.  
c) Realize 32:1 Mux using 4:1 Mux & 2:1 Mux? 6M.

OR.

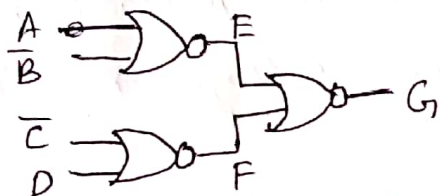
- 6a) Explain types of PLD's? 6M.  
b) Realize  $F(a, b, c) = \sum m(1, 2, 3, 5, 6)$  using PLA? 6M.  
c) Design a priority encoder the truth table of which is shown in fig, the order of priority for three inputs is  $X_1 > X_2 > X_3$ . However, if the encoder is not enabled by S or all the inputs are inactive the output  $AB = 00$ ? 8M.

#### MODULE-4

- 7a) Write a VHDL code for multiplexer by considering appropriate example? 6M.
- b) With the help of timing diagram - Explain SR Master slave FF? 8M.
- c) Deduce the characteristic eq<sup>n</sup> for JK flip flop? 6M.

OR

- 8a) Write a VHDL code for ? 6M.



- b) Explain gated D Latch? 6M.
- c) Explain edge triggered D-flip flop? 8M.

#### MODULE-5

- 9a) Explain 8-bit SISO Shift Register? 6M.
- b) Explain Sequence checker + ~~character~~ generator? 6M.
- c) Draw mealy model for serial adder? 8M.

OR

- 10a) Design Decade Counter using SR flip flop? 8M.
- b) Differentiate b/w<sup>n</sup> synchronous + asynchronous counter? 6M.
- c) Draw moore state diagram for sequential parity checker? 6M.