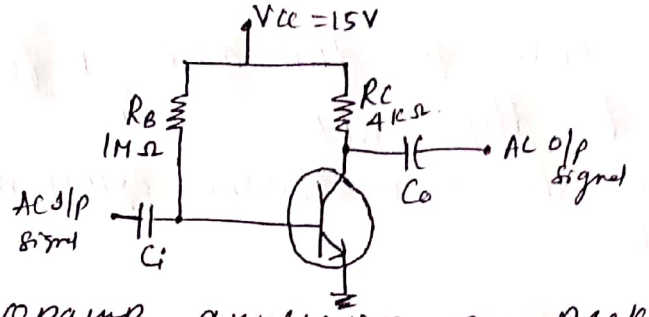
ADE Model Question paper II.

Module-1.

1a) Explain Construction of LED? 6M

b) for the fixed-bias circuit of fig, determine the operating point (given the transistor gain $\beta = 100$, $V_{BE} = 0.7V$). Also draw the load line for the circuit. 8M.



c) Explain opamp application as peak detector? 6M.

OR.

2a) Explain opamp application as schmitt trigger? 6M.

b) Explain voltage to current convertor? 6M.

c) Explain R-2R ladder circuit? 8M.

MODULE-2.

3a) Simplify using K-map $F(a,b,c,d) = \Sigma m(1,3,5,7,9) + \Sigma d(6, 12, 13)$? 6M.

b) Write SOP & POS for $F(A,B,C,D) = \Pi M(1,5,6,7,9,12,13,14)$? 8M.

c) Apply EVM method $F(W,X,Y,Z) = \Sigma m(1,3,5,7,13,14,15,16)$? 6M.

OR.

4a) Explain patricks method with example? 6M.

b) find a min SOP using Quine Mcclusley method:

$F(a,b,c,d) = \Sigma m(1,3,4,5,6,7,10,12,13) + \Sigma d(2,9,15)$ 14M.

MODULE-3.

5a) Realize $F_1(a,b,c) = \Sigma m(0,2,3,4,5)$ & $F_2(a,b,c) = \Sigma m(0,2,3,4,7)$ using only 2-I/p NAND gate & invertor? 8M.

b) Explain the working of Simulator for combinational logic? 6M

c) Realize $F(W,X,Y,Z) = \Sigma m(1,2,5,6,8,9,10,11,14,15)$ using 8:1 MUX. ? 6M.

OR.

6a) Realize $F_1(a,b,c) = \Sigma m(0,3,5)$, $F_2(a,b,c) = \Sigma m(1,5,6)$, & $F_3(a,b,c) = \Sigma m(2,3)$ using 3:8 decoder ? 6M.

b) Realize 7-segment decoder using PLA ? 8M.

c) Write a note on programmable array logic ? 6M.

MODULE-4

7a) Write a VHDL code for full-adder & full-subtractor ? 8M

b) Explain SR flip flop ? 6M.

c) ~~Construct~~ Deduce the characteristic equation for D & T flip flop ? 6M.

OR

8a) Briefly explain packages & libraries in VHDL ? 6M.

b) Convert JK flip flop to SR flip flop ? 8M.

c) Explain edge-triggered JK flip flop ? 6M.

MODULE-5

9a) Explain n-bit Parallel adder with accumulator ? 6M.

b) Explain Johnson Counter ? 6M.

c) Explain Moore model & mealy model in brief ? 8M.

OR.

10a) Design 3-bit up-down counter using D ff ? 8M.

b) Draw moore state diagram for serial adder ? 6M

c) Differentiate b/w moore & mealy model ? 6M.