TataElxsi hardware paper

(1).problem on lissojous pattern: in x-y mode if vlg applied to x-axis is 2 sinwt then what is the vtg to be applied to y-axis so that we observe the following pattern on the cro : [angle b/n x-axis and the diagonal line is 45degrees] ans is 2root 2 sin (wt +45)

(2)what is the resolution of an adc : vref/(2 pow n).

(3)some circuit is given with two f/f s ,what is that circuit? Ans may be shift reg

(4)spatial to temporal converter is ? (a) shift reg (b) counter (c) adc ans may be adc

(5) darlington is used for _____ ans high current gain

(6)some circuit with nand gates is given ,what is that circuit ans is xor

(7) a wired circuit with some nand gates is given asked the function of that circuit

(8) an opamp circuit is given asked to find the transfer function of it (I think its an ideal integrator circuit)

(9)a pole zero pattern of an impedance function is given . it has a conjugate pair of zeros and a conjugate pair of poles ,then what elements does the impedance consists of? Ans LC elements

(10)most computers wont use floating point arithmetic .why?
a.costly b. slow c. cant

(11)bit-slice processor mean …… ans used for shift ,masking of bits

(12)ac motor used in servo applications is (a) single phase induction b.2 phase induction c. 3 phase induction

(13)tv resolution depends on a. bandwidth 2. detector c. no. of frames /sec

(14)equalizing pulses are sent in tv during a. horizontal blanking b. vertical blanking ……….

(15)cdma is not suitable for satellite communication . why ? ans may be complexity of operation

(16)given some waveforms and asked that which of the waveforms will have odd harmonics of sine terms

(17)asked for two's complement of a number

(18)maximum signed no. represented by a 8 bit computer

(19)a chip has a capacity of 256bits,to implement a 1KB capacity how many chips are required ans 32

(20)ecl operates in _____ and _____ regions of the transistor

(21)given a transient circuit ,asked for time constant while charging and discharging

(22)he had given 4 statements about a f/f and asked which of them are correct
1. it can store a bit 2. jk f/f have rat race when storing a 2 bit info 3. master slave is used to store a 2 bit info
4. d f/f used as a latch for multiplexing operations

(23) Venn diagram is given and asked to write expression for the shared portion in it

(24)cb and ce are _____ biased when transistor is in saturation

(25) condition for nyquist rate .

(26)carry look ahed adder is 1.fast 2. requires more h/w 3. costly

(27) ideal power supply will have a. zero internal resistance b. more o/p resistance c. less o/p resistance

(28) a problem on cro and probe interface i.e design of an attenuator for the cro probe (formula for it is R1 * c1 = R2 * C2)