ISRO Technical Paper 2008

1) Moore model of DFF?

2) Which of the following filter has steep roll-off characteristics?
(A) Butterworth filter (B) Chebyshev filter (C) Bessel filter (D)--
ans: B

3)The architecture of DSP processor---------
(A) Havard (B) Von neumann (C)...(D)..
ans: A

4)If the input frequency to a 6 stage ripple counter is 1000MHz then output frequency at 6th stage_____

5)Minimum number of 2 input NAND gates required to realise the fn. AB'+CD'+EF'
ans: 6

6)What will exit() fn. in C will do?

7) go to command in C will cause the program to jump to----
ans: Label

8)VSWR is given then asked to find out reflection coefficient

9)The relation between power in FM signal and modulation index--------

10)If two signals are AM modulated with modulation indices of 0.3 and 0.4 what will be the modulation index of combined signal?
ans: Calculate using 1/M=(1/m1)+(1/m2)

11)If n stage pipelining is used in a processor, then what will be the speed improvement over non pipelined processor?
(A) same (B) n (C) n! (D) 2n

12) One circuit is given (That was a Voltage Doubler using op-amp) and asked to Identify that...

13) Which one of the following memory has fastest write time?

(A) Flash (B) EEPROM (C) EPROM (D) None of these

14) In EEPROM data is stored in____
(A) Cross coupled Latch (B) Capacitor (C) floating gate transistor (D)--

15) Which technology is faster?
(A) Bipolar (B) MOS (C) CMOS (D) ..

16)Memory access time, cache access time , hit ratio are given, Asked to find out Average memory

access time

17) If the probability of getting a job for A is 1/3 and the probability of getting a job for B is 1/4 then the probability of getting a job for A or B will be____?

18)One transfer fn As4 + Bs3 + Cs2 +D=0 (I don't remember the values of A,B,C,D) is given, Asked to find out whether the system is____
(A) Stable (B) Unstable (C) Marginally Stable

19) For implementing D flip flop using RS flip flop, the extra component needed is____
(A) AND gate (B) OR gate (C) NOT gate (D) NOR gate

20)The output of an 8 bit DAC is 1Volt when the input is 00110010, then the full scale output of the same DAC will be____
ans: 5.1 V (Hint: 1/50*255)

21)Fastest ADC is___
(A) SAR (B) sigma- delta (C) flash (D)...

22)The operating point of Class-B amplifier will be at_____
(A) exactly at cut-off region (B) inside saturation region (C) inside cut-off region (D) middle of active region

23)For an N bit ADC , the number of comparators needed___
(A) N (B) 2N (C) 2N -1 (D) 2N-1

24)De-emphasis circuit is used for_____
ans: Attenuating high frequency components

25)The laplace transform of e-2t _____
Ans: 1/(s+2)

26)The magnitude of 1+cos x+j sin x____
Ans: 2 cos (x/2)

27) A circuit is given in which the capacitor (1uF) is initially charged to 12V , At t = 0, one switch is closed so that another capacitor of capacity 1.5uF comes in parallel with the first capacitor, then in steady state what will be the voltage across them? (Visualize the circuit , as I can not draw the circuit since the editor is not supporting it)

28)Alpha of a transistor=0.99, Ico=1uA, Ie=1 mA, Ic=?

29)If the input given to an inductor is delta(t) (ie: =1 when t=0 and ,=0 otherwise) then the current will be___
(A) infinity (B) -infinity (C) 1 (D) 0

30) For implementing Band pass filter using High pass filter (Cutt off freq=Fh) and Low pass filter (cutt off freq= Fl)_____

(A)Fh=Fl (B) Fh>Fl (C) Fh<F1 (D)..
Ans: Fh<Fl

31)In the Enhancement type MOSFET the gate to source voltage Vs drain current characteristics will be____
Ans: Drain current Increases as Vgs increases in active region

32)In a johnson counter, How many state have to be changed to increment the count from 0100 to 0111?

33)Odd parity generator is____
Ans: XNOR gate

34)A circuit using op-amp was given, the question was to calculate output offset voltage___
Ans: Vo(off)=Vin(off)*(1+Rf/R1)

35)Antialiasing filter is_____
(A) Digital filter (B) Analog filter (C) Can be Analog or digital (D) RC filter