Section Wise - Redpine Signals Model Placement Paper

Section:1(ELECTRONICS)

Q1.Simple realization of logic gates given, we have 2 find d output?

ANS: Have to know the properties of AND,NAND, EX-OR functions

Q2.The maximum value of signed number that can be fit into 2 byte register?

ANS: We know that byte consists of 8 bits and the left most bit consist of sign hence only seven bits represent the magnitude similarly for 2 byte register d left most bit i.e.,16th bit represent sign hence the max value can be obtained by placing all 1's in remaining 15 bit positions.

Therefore d value is: (2^15)-1=32767

Q3. Ideal op-amp sum was given and we have 2 find d output voltage?

ANS: It was difficult to draw d diagram i will explain d procedure so that u can b able 2 interpret d diagram easily

At terminal1: (2-V1)/5=(V1-Vout)/10;

At terminal2: (0-V2)/10=(V2-Vout)/100; as given it is ideal op-amp V1=V2;

By solving d above three equations we can get Vout=-5.5V

Q4.Given a series of three sources connected in a ckt with load resistor(R) and power delivered by them individually is given by 18W,50W,98W.What is the total power delivered when all the three sources are active?

ANS: E1^2/R=18W;

E2^2/R=50W; Equations formed by interpreting the given data

E3^2/R=98W;

Hence total power delivered when all the 3 sources r active is E^2/R;

where E=E1+E2+E3;(as they r connected in series)

By multiplying 1st&2nd eqs we get (E1*E2)/R=sqrt(18*50)=30W;

By multiplying 2nd&3rd eqs we get (E3*E2)/R=sqrt(98*50)=70W;

By multiplying 1st&3rd eqs we get (E3*E1)/R=sqrt(18*98)=42W;

Therefore total power delivered is:P=(E1^2+E2^2+E3^2+2E1E2+2E2E3+2E1E3)/R

P=18+50+98+2*30+2*70+2*42=68+98+60+140+84=166+200+84

Hence total power delivered P=450W

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Q5. A 26Kbyte memory, there is memory it contains 12 address lines and 4 bit data bus, the number of these type of memories required to design 26Kbyte memory?

ANS: **26K byte=26*1024=26624 bytes**
Address lines=12;memory occupied=2^12=4096 bytes
4 bit data bus memory can be neglected as it is very small
Hence 26624 bytes=N*4096 bytes;
=>N=26624/4096=6.5
Hence 7(6.5)type of memories r required to design 26Kbyte memory

Q6.The no of 2-input XOR gates required to design 19-input XOR gate?

Sol: Lengthy procedure……. !

Q7.This questions was given based on rising n falling edges of a flip flop?

Sol: Have a brief look on the theory of flip flops

Q8. Conversion of given multiplexers to AND gates

Q9.Convert the following:

a) **73(in decimal) to binary**
b) **octal to binary**
c) **decimal to hexadecimal. …… !**

ANS: **To convert decimal number 2 binary divide d given decimal number by 2**
To convert decimal number 2 hexadecimal/octal divide d given number by 16/8
To convert binary number 2 decimal multiply d digits with powers of 2

Section:2(COMPUTING)

Q10.Simple C programs(3 questions were given)

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Q11. Program to obtain value of 'k' and to obtain 'k' in d given program code u should have d knowledge of modular division

Eg: 16 mod 7=remainder obtained when 16 is divided by 7 i.e.,2

Q12.

A(m,n)=n+1,if m=0;
=A(m-1,A(m,n)),if m>0,n=0;
=A(m-1,A(n,1)),if m>0,n>0; then find A(2,2)

Sol: Looks simpler but takes lot of time 2 answer its based on mainly RECURSIVE function used in C language

Q13.A man walking along a railway bridge heard d whistle sound of a train when he already 5/13th distance of a bridge. Then he runs n can be escaped from making accident with d train. If he had ran back from there to starting point he could be escaped. If the velocity of man is 12kmph.What is velocity of man?

ANS: By given data it is clear that man has to cover total distance of d bridge and 5/13th distance of d bridge as he walked back. Let d distance of d bridge='x'
Hence total distance man has to cover=x+(5/13)x=(18/13)x
But train requires only 'd' distance to cover and also time taken by both must b same
=> Velocity of train=x/t;
Velocity of man=(18/13)x/t=12kmph;
=>x/t=(12*13)/18=26/3kmph

Q14.In a party 12 members had a board meeting and hands were shaken between them before and after d party. Therefore total no.of handshakes possible?

ANS:1 st person can shook his hand with other 11 persons=>handshakes possible=11
2nd person can shook his hand with other 10 persons=>handshakes possible=10
11th person can shake hand with 1 person only=>handshakes possible=1
Hence total no.of handshakes possible=11+10+9+8+. ..... +1=66
But hands had done it twice their work in d party. Therefore total no.of handshakes possible=2*66=132

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Q15.The average age of 10 members of a given committee= average age of 10 members 4 yrs.' ago because older member is replaced by a younger member. What is d age difference?

ANS: Present average of ages=(a1+a2+.....+x)/10------ eq1;

Average of ages before 4 yrs ago=(a1+a2....-9*4+y)/10 ----eq2;

By equating eqs 1&2 we get

x=y-36;

y-x=36=>the age difference is 36 yrs. .....!

Q16.Abbreviations from CN like.....

ANS: CDMA-Code division multiple access

FTP- File transfer protocol

IEEE-Institute for electrical and electronics engineers

Digital:

It includes both STLD ,VHDL and Microprocessors.

Q1)Design 3:1 multiplexer using one tri-state buffer, AND gates and NOT gates.

Q2)The no of 2-input XOR gates required to design 19-inprt XOR gate?

Q3)A 26Kbyte memory, there is memory it contains 12 address lines and 4 bit data bus, the number of these type of memories required to design 26Kbyte memory?

Q4)Write a VHDL or Verilog HDL code for

input:a,clock,reset

output :out is assigned to 1 when a is '1' for two clock cycles.

Q5) What is the output of following fig.100ps is the delay for XOR gate and 50ps for AND gate .all +ve and -ve edges start at boundaries of nanoseconds.(actually the output of fig is A(B(notC)+(not B)C) ,and the waveforms are given).

Q6) Design forwhich the output is 10MHz clock,input to that circuit is 30MHz.Communications:

Q7) What is shoran's theorem?

Q8) X is Gaussianly distributed signal

a)p(X<=infinte)=?

b)X is zreo mean and a unit variance random variable,them find the mean and variance of y

y=2X+5;

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Q9) Because of error 000 is coded instead of 0 ,111insted of 1.then what is the error correction and error detection capability of the system?

Q10) A deterministic signal whose pdf is given then we have to find the minimum sampling frequency needed ?