



what is zeroth law ?

why should we place 9KV lightning arrestors in 11KV substation ?

How to calculate % Impedence?

what is meant by dielectirc medium? what is the dielectirc value of air and water???

what is DAR test?

what is the value of prandtl no. for air?

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) goto 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 $1/M=(1/m_1)+(1/m_2)$

11) If n stage pipelining is used in a processor, then what will be the speed improvement over nonpipelined 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 $\frac{1}{3}$ and the probability of getting a job for B is $\frac{1}{4}$ then the probability of getting a job for A or B will be_____?

18) One transfer fn $As^4 + Bs^3 + Cs^2 + D=0$ (I dont 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 flipflop 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: $\frac{1}{50} * 255$)

21) Fastest ADC is_____

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(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 (1 μ F) is initially charged to 12V, At $t = 0$, one switch is closed so that another capacitor of capacity 1.5 μ F 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, $I_{co}=1\mu A$, $I_e=1 \text{ mA}$, $I_c=?$



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= F_h) and Low pass filter (cutt off freq= F_l)_____

(A) $F_h=F_l$ (B) $F_h>F_l$ (C) $F_h<F_l$ (D)..

1. Tell me any one of the life cycle model

2. Give details of the phases in the life cycle model

3. What is cost estimation, Tell me any one. I discussed about COCOMO model while he asked about this model

They asked the formula which is related to the cost estimation.

4. What is verification and validation etc.

1. If sampling frequency doubles then

a) Quantization noise decreases

b) Quantization density decreases

c) Quantization noise increases

d) Quantization density increases



2. Two signals of 2GHz and 4GHz are frequency modulated on same carrier 10 GHz. Find the ratio of frequency deviation if band widths of both are equal.

a) 1:2 b) 2:1 c) 1:1 d) 1:4

3. Gray code of 111 is

4. $3 \times 5^{12} + 7 \times 6^4 + 5 \times 8 + 3$ then value in binary form contains _____ number of 1's.

a) 7 b) 6 c) 9 d) none

5. The 2's compliment of decimal number 19 in 8-bit system is

a) 11101101

6) The high gain codes are

a) Turbo codes b) BCH codes c) R-S codes

7) BCH codes are of the type _____

a) Convolutional type b) c)

8) Time constant of LC circuit is

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Your key towards success.....

a) L/R b) L/R² c) RL

9) If R is doubled and C is halved then frequency of series RLC circuit is

10) The solution for the equation $(D^2+4)y=\sin 2x$ is

11) Laplace Transform of $\sin 3x$ is

12) The Z-transform for the series is

$X[n] = \begin{cases} 7; & n = -1 \end{cases}$

$\begin{cases} 5 & n = 0 \end{cases}$

$\begin{cases} 1 & n = 1 \end{cases}$

$\begin{cases} 0 & \text{else} \end{cases}$

13) The magic Tee is a

a) 4 port tee b) c)

14) The register which holds the address of the next instruction is

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a) Program counter b) c)

15) The antenna gain is given by.....?

a16) The satellite is in 630km orbit and transmitting at a frequency 5 MHz, when satellite is on your head the Doppler shift is-----

a) b) c) 0 d)

17) The impedance of a lossless transmission line is

a) $v(L/C)$

18) A 50 Ω line with load impedance 100 Ω the VSWR is

19) In a waveguide measurement, the forward power is 10mW, the reverse power is 1mW then VSWR is _____

20) Transmitted power is 100W, gain of the transmitter antenna is 30 dB and the path loss is 50 dB then received power is

21) When transmitted power is 100mW and the path loss 100 dBm then received power is

a) -80 dBm



22) When a em wave is incident normally on a perfect conductor then

- a) Totally reflected b) partially reflected
- c) Totally transmitted d) none.

23) $Z_{sc} = 100\Omega$ $Z_{oc} = 1\Omega$ then Z_o is

- a) 1Ω b) 10Ω c) _____ d) _____

24) When the operating wavelength of line is $\lambda/4 < \lambda < \lambda/2$, the impedance is

- a) Capacitive b) inductive c) _____ D) none

25) The value of L if source is 50V AC of 10 KHz frequency and current is 7.96 A.

- a) _____

26) The resonant frequency is 50MHz bandwidth 100 KHz then Q factor is

- a) _____ b) _____ c).....

27)The Q factor of a series RLC circuit is



a).....b).....

28) Q value of a parallel RLC circuit is _____

a).....b)....

29) If the lines $x+y+3=0$, $x-2y+7=0$, $2x+ky+5=0$ are required to be concurrent then the value of k is ___ a) ___ b).....

30) The vectors $i-2j+k$, $2i+3j-k$, R are the complete, then r is given by _____

31) If a satellite revolving with angular velocity w and the velocity is v then

Curl v is _____

a) w b) $2w$ c) w^2 d)

32) If each stage amplifier contains 10dB gain the figure of merit of 2-stages is

Given by

33) The maximum rate possible in kbps if $F=15$ and bandwidth is 4 KHz is.....

34) The maximum time allowed for each flip flop for a ripple counter of mod-1024 , if clock given to it is 1MHz is

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35) The maximum time allowed time for each flip flop for a mod 10 synchronous counter if each flip flop delay is 25ns.

- a) 25 ns b) 50 ns c) 100 ns d) none

36) The high speed for CML gate is due to operating it in ----- region.

- a) non saturation

37) In a micro processor the wait states are inserted to

- a) make the processor to wait during DMA operation
b) make the processor to wait during an interrupt processing
c) make the processor wait during a power shutdown.
d) interface the slow peripherals to the processor.

38) In a digital voltmeter the ADC's used are of type

1. successive 2. flash type 3. Dual slope

in ascending order of time is

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a) 2,1,3 b) 1,2,3 c) 3,1,2 d) none

39) The number of NAND gates are required to implement $A \oplus B$ (XOR), assuming compliments

not available

40) The resolution for a DAC is given by 0.4% then no. of bits of DAC is

a) 8- bits

41) The chip capacity is 256 bits, then the no.

of chips required to build 1024 B memory

Is.....

a) 32 b) 16 c) 15)

42) Which of the following are correct?

1. A flip-flop is used to store 1-bit of information

2. Race around condition occurs in JK flip flop when both the inputs are 1

3. Master slave flip flop is used to store 2 bits of information

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4. A transparent latch consists of a D- flip flop

a) 1, 2,3 b) 1,3,4 (ANS) c)1,2,4 d) 2,3,4

43) The bit rate of a QPSK compared to BPSK is

a)half b) double c) same

44) There are 5 red balls and 5 black balls in a box. The probability to select 2 balls one after other without re-putting is,

a) 2/9 b) 1/90 c) 11/90 d) none

45) The rms voltage is obtained by multiplying peak by a factor

a) $1/\sqrt{2}$

46) $H(s)=S/(S+a)$ is a transfer function of _____

a) LPF b) Notch c) BPF d) HPF

47) Resistance of a 2 parallel resistors is 12 Ω and the effective resistance when one resistor broke is 18 Ω then the value of resistance in another is _____



48) The output of a phase modulator when input applied is integrating signal is

a) FM b) AM c) PM d) none

49) For a transformer the losses which vary with load are

a) core losses b) copper losses c) Hysteresis losses d) none.

50) The waves which cannot be transmitted in waveguide are

a) TE b) TEM c) TM d) none

51) Diplexer is a

a) circulator only b) only transmitter filter c) only receiver filter

d) both transmitter and receiver filter

52) $d(t)$ represents impulse then $\int_0^{\infty} d(t) \cos 2t \, dt$ with limits 0 to infinity is

a) 1, b) -1 c) infinity d) 0

53) $\int \frac{1}{x\sqrt{x^2-a^2}} dx$ is

A) $\operatorname{cosec} 2x$



1 The concept of ----- derived from the "ZEROTH LAW OF THERMODYNAMICS".

TEMPERATURE

2 The concept of ----- derived from the "SECOND LAW OF THERMODYNAMICS".

ENTROPY

3 The expression for isentropic index $[\gamma]$ in terms of number of degrees of freedom

(n) -----

$1 + \frac{2}{n}$

4 The critical Reynolds no upto which the viscous flow exists in pipe -----

2000

5 Two forces of equal magnitude P acts at right angles to each other and having same directions. Find out the expression for their resultant $[R]$ -----



[2]½ P

6 The angular frequency of handclock-----

π/30 rad/s

7 The equation for free torsional vibration-----

[1/2π] [q/I]½

8 A thin cylinder is subjected to longitudinal stress s_0 and internal pressure P , findout the maximum shearstress developed in it [q_{max}] -----

0.5 s_0

9 Rate of moment of momentum is equal to the -----

Torque applied by the body

10 The expression for loss of energy [h_e] due to sudden enlargement of the pipe----



$$h_e = [v_1 - v_2]^2 / 2g$$

11 A spring of stiffness K is divided into "n" number of springs. Each spring having stiffness -----

nK

12 The non-dimensional number corresponds to

$[\text{inertia force} \backslash \text{compressibility force}]^{1/2}$ ----- Euler number

13 Equation for forced vortex flow-----

$v/r = \text{constant}$

14 The causes of cavitation

Metallic surfaces are damaged

Noise & vibrations

15 How to increase the thermal efficiency in Carnot cycle by-----

Decreasing low temperature

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16 The slenderness ratio in columns can be obtained from the -----

Least radius of gyration

17 50:1 gear reduction ratio possible in-----

worm gear

18 Wire drawing property named as -----

ductility

19 One man is standing in the elevator and the elevator is moving in the upward direction. What type of reading regarding the weight of man will we get from gauge--

The weight of man shown by the gauge will more the actual weight of the man.

20 LMTD for counterflow heat exchanger is compared to parallel to heat exchanger--

More

21 The free damping equation $2y'' + 3y' + 8y = 0$. Calculate damping factor (D.F) --

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3/8

22 The discharges for the two parallel pipes of same lengths are Q_1 & Q_2 respectively and their diameters are 200 mm & 800 mm respectively. Calculate the ratio of discharge of smaller pipe to larger pipe.

1/32

23 A compressor is used to compress the air from 5 bar to 10 bar .Calculate its critical pressure [P?]-----

2.64 bar

24 Equivalent twisting moment-----

$$T_e = [T^2 + M^2]^{1/2}$$

25 The shear stress distribution in pipe flow -----

Centre is zero and linearly varying from the center to the wall

26 The irrational component in x-y is-----



$$dv/dx = du/dy$$

27 The ratio kinetic viscosity/thermal diffusivity is -----

Nusselt Number

28 The cylinder is subjected to insulations K & 2K at the outside surface to avoid heat transfer. In order to arrest heat transfer effectively , which insulation should be provided first at the outer surface?

2K & K respectively

29 The wall having conductivities

K1 K2

Findout the equivalent conductivity of the material-----?



29 The maximum amplitude in this vibration equation $y = 6 \sin \omega t$ -----

6

30 The thermal boundary layer in an ideal fluid flow is -----

0

31 What does tend to stagnation point -----

The velocity is 0 at the stagnation point due to the increase in pressure energy from the conversion of K.E into P.E.

32 Match the following:

i. subsonic nozzle : figure

ii. Supersonic nozzle : figure

iii. Subsonic diffuser : figure

iv. Centrifugal compressor : figure



33 The factor of safety subjected to number of cycles related to

Endurance limit

34 In composite beam , width is directly proportional to -----

if the depth of the beam is kept constant.

a M

35 The heat transfer rate of hollow cylinder is inversly proportional to the following

----- r_2/r_1

36 A material at 300°C is immersed in water at 30°C such that it will take 170 seconds to become 150°C .

A same material at 300°C is put in air at 30°C but it will take 200 seconds to become 150°C . What is the reason behind it ?

K of water is more compared to air



37 Radiation is ----- wave phenomenon

Electromagnetic without medium

38 The compression ratio[r] of petrol engine ranges from -----

6 to 10

39 $\Delta Q/T = 0$ and $\Delta s = 0$ corresponds to ---- irreversible & adiabatic

40 Cold working of metal increases -----

Tensile strength

41 The power absorbed in belt drive depends on-----

Tension in tight side, Tension in slack side, coefficient of friction & Radius of pulley.



42 The temperature loss related ----- hysteresis loss

43 The convergent pipe having entry and exit diameters are 100 and 50 mm respectively, find out their velocity ratio from entry to exit.....

1/4

44 They had given one composite circular pipe having 4 varying cross sections . They are 2D, 1.5D, 4D & D respectively. The water is entering at velocity V at section 1 and leaving at section 4. Find out the pressure decreasing order.....

$P_4 > P_2 > P_1 > P_3$

45 The bulb having weight 150N supported by two ropes and attached to the walls having angles 45° & 60° . Findout the reaction forces in the ropes ?

This is related to Lamis theorem



46 A hollow sphere of radius r . A particle is moving with coefficient of friction $\frac{1}{3}$ inside the sphere from wall . which height will it become rest?

47 The disc is resting on the rough wall by a rope tied at the center . The rope makes angle with the wall around 30° . The tension in the string is -----than the weight of the disc. more

48 A railway wagon containing partially full of water. Which angle-----

49 Findout the graph between discharge [Q] in the x-axis and head [H] in the y-axis-----

50 In welding pitch dimension is limited to-----

51 The composition of inconel alloy-----

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52 There is a heat transfer between two walls having thickness and conductivities k_1 & k_2 respectively. The linear temperature profile of first wall is more steeper than the second wall . Findout the ratio K_1/K_2 -----

a) >0 b) <0 c) $=0$ d) the given data is insufficient

53 The max shear stress developed in solid circular shaft is 100 MPa . Calculate the max normal stress developed in it? ??????

54 This question related to welding -----

55 Bearing liner-----

a) Babbit metal b) Gun metal

56 Electrical resistance material -----Nichrome



57 This question related to radiation

58 A sun emits 1150K at 0.5μ . A furnace emits 300k from small door -----

59 In the simple pendulum , the maximum amplitude depends on -----
increase in length

60 The fuel flow increases if-----

a) exhaust valve burnt b) filter choke c) silencer choke

61 The jet propulsion depends on-----

a) jet velocity b) weight ratio



62 What is the condition for perfect frame-----

63 Depth of cut can be increased by-----

64 The workpiece can be held in-----

65 This is related to Nucleate boiling

66 What is the expression for Reynolds number in terms of diameter of the pipe..... $Re = \rho V D / \mu$

67 Air conditioning means-----

a) cooling & heating b) dehumidifying c) removing impurities from air d) all

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68 Fibrous fracture occurs in -----

- a)brittle fracture b) ductile fracture c)shear fracture d)none

69 In laser beam machining , the workpiece should be-----

- a)absorbed by all the rays b) reflected by all the rays

70 Foam and coke are good insulators. Why?-----

- a)less density b)

71 Gold property-----

- a)good conductor b)good insulator



72 In lathe , the workpiece can be held in -----

a) live center b) steady rest c) 3-way chuck d) 4-way chuck

1) output resistance of ideal OP AMP is:-

a) 0 b) 1 c) infinite d) very high

ANS: a) 0

2) waveguide acts as:-

a) LPF b) HPF c) BPF d) BRF

ANS: b) HPF

3) quality factor of series RLC ckt. increases with:-

a) increase in R b) decrease in R c) doesn't depends on R d) none of these

ANS: b) decrease in R.

4) energy stored in capacitor is given by:

a) CV b) 0.5CV c) CV² d) 0.5CV²

ANS: d)

5) CMRR of an OP AMP is given as 80db and Ad is 20000. Value of Acm will be:-

a) 4 b) 8 c) 2 d) 1

ANS: c) 2