(PAPER) BSNL JTO Sample Test Paper

BSNL JTO Recruitment Test

0. If the voltage applied across a capacitance is triangular in waveform then the waveform of the current is-
a) Triangular

b) Trapezoidal

c)) Sinusoidal

d) Rectangular
1. One of the following statement which is true for relative dielectric constant is -

a) It is dimensionless

b) It is not equal to unity for vacuum

c)) It?s value for all substances is less than one

d)) None

2. Pure metals generally have-

a) high conductivity and low temperature coefficient

b) high conductivity and large temperature coefficient

c) low conductivity and zero temperature coefficient

d) low conductivity and high temperature coefficient

3. For small size, high frequency coils, the most common core material is

a) Air

b) Ferrite

c) Powdered ion

d) Steel

4. For an abrupt junction Varactor diode, the dependence of device capacitance (C) on applied reverse bias (V) is given by-

a) C a V1/3

b) C a V-1/3

c) C a V1/2

d) C a V-1/2

5. A superconductor is a-

a) A material showing perfect conductivity and Meissner effect below a critical temperature

b) A conductor having zero resistance

c) A perfect conductor with highest dimagnetic susceptibility

d) A perfect conductor which becomes resistive when the current density through it exceeds a critical value

6. When a semiconductor based temperature transducer has a temperature coefficient of ?2500 mV/0C then this transducer is indeed a-

a) Thermistor

b) Forward biased pn junction diode

c) Reverse biased pn junction diode

d) FET

7. The location of lightning arrestor is -

a) Near the transformer

b) Near the circuit breaker

c) Away from the transformer

d) None

8. Time constant of an RC circuit increases if the value of the resistance is -

a) Increased

b) Decreased

c) Neither a nor b

d) Both a and b

9. Intrinsic semiconductors are those which -

a) Are available locally

b) Are made of the semiconductor material in its purest from

c) Have more electrons than holes

d) Have zero energy gaps

10. The primary control on drain current in a JFET is exerted by -

a) Channel resistance

b) Size of depletion regions

c) Voltage drop across channel

d) Gate reverse bias

11. The electrical conductivity of metals which is expressed in ohm-1 m-1 is of the order of -

a) 1010

b) 105

c) 10-4

d) 10-6

12. When biased correctly, a zener diode ?

a) acts as a fixed resistance

b) has a constant voltage across it

c) has a constant current passing through it

d) never overheats

13. The current amplification factor adc is given by ?

a) IC/IE

b) IC/IB

c) IB/IC

d) IB/IC

14. Compared to bipolars, FETs have-

a) high input impedance

b) low input impedance

c) same input impedance

d) none

15. The source-drain channel of JFET is -

a) ohmic

b) bilateral

c) unilateral

d) both a and b

16. diac is equivalent to a -

a) Pair of SCRs

b) Pair of four layer SCRs

c) Diode and two resistors

d) Triac width

17. When a sample of N type semiconductor has electron density of 6.25 ? 1011 /cm3 at 300K and if the intrinsic concentration of carriers in this sample is 2.5 ? 1013/cm3 then the hole density will be ?

a) 106/cm3

b) 103/ cm3

c) 1010/ cm3

d) 1012/ cm3

18. The statement 'In any network of linear impedances, the current flowing at any point is equal to the algebraic sum of the currents caused to flow at that point by each of the sources of emf taken separately with all other emf's reduced to zero? represents -

a) Kirchhoff's law

b) Norton's theorem

c) Thevenin's theorem

d) Superposition theorem

19. One of the following modes which has the characteristics of attenuation becoming less as the frequency is increased and is attractive at icrowave frequencies of circular cylindrical wave guides is ?

a) TE1 mode

b) TM01 mode

c) TE01 mode

d) Higher order mode

20. A two-port network is symmetrical if ?

a) z11z22 ? z12z21 = 1

b) h11h22 ? h12h21 = 1

c) AD ? BC = 1

d) y11y22 ? y12y21 = 1

21. For transmission line load matching over a range of frequencies, it is best to use a-

a) balun

b) broad band directional coupler

c) double stub

d) single stub of adjustable position

22. The poles and zeros of a driving point function of a network are simple and interlace on the negative real axis with a pole closest to the origin. It can be realised -

a) by an LC network

b) as an RC driving point impedance

c) as an RC driving point admittance

d) only by an RLC network

23. Poles and zeros of a driving point function of a network are simple and interlace on the jw axis. The network consists of elements ?

a) R and C

b) L and C

c) R and L

d) R, L and C

24. For a two port reciprocal network, the output open circuit voltage divided by the input current is equal to ?

a) B

b) Z12

d) h12

25. In a short electric doublet the radiation properties are so that-

a) The induction field diminishes as the square root of the distance and is only appreciable in the vicinity of the conductor.

b) In the radiation, magnetic field is minimum when the current is maximum.

c) The radiation resistance of a short doublet antenna is extremely high.

d) Mean rate of power through a unit area of spherical sphere surrounding this doublet is proportional to the square of the elemental length, other factors remaining constant.

26. The frequency modulated (FM) radio frequency range is nearly -

a) 250 ?300 MHz

b) 150 ? 200 MHz

c) 90 ? 105 MHz

d) 30-70 MHz

27. In an underground cable the distortion in the transmission of carrier frequency can be eliminated by using -

a) Inductive loading

b) Resistive loading

c) Capacitive loading

d) Shielding

28. The charachteristic impendance of a transmission line with inductance 0.294 mH /m and capacitance 60 pF/m is -

a) 49 W

b) 60 W

c) 70 W

d) 140 W

30. For a quarter wavelength ideal transmission line of characteristic impedance 50 ohms and load impedance 100 ohms, the input impedance will be ?

a) 25W

b) 50W

c) 100W

d) 150W

31. The depth of penetration or skin depth for an electromagnetic field of frequency ?f? in a conductor of resistivity r and permeability m is-

a) inversely proportional to r and f and directly proportional to m

b) directly proportional to r and inversely proportional to f and m

c) directly proportional to f and inversely proportional to r and m

d) inversely proportional to r and m and directly proportional to f

32. When an antenna has a gain of 44dB then assuming that the main beam of the antenna is circular in cross-section the beam width will be -

a) 0.4456 0

b) 1.44560

c) 2.44560

d) 3.44560

33. Lens antennas used for microwaves are usually made of -

a) Polystyrene

b) Glass of low refractive index

c) Paraboloid surfaces

d) Dielectric media having large refractive index

34. One of the following types of instrument which is an electrometer is -

a) Electrodynamometer

b) PMMC

c) Electrostatic

d) Moving iron

35. When an ac current of 5A and dc current of 5A flow simultaneously through a circuit then which of the following statement is true ?

a) An ac ammeter will read less than 10A but more than 5A

b) An ac ammeter will read only 5A

c) A dc ammeter will read 10A

d) A dc ammeter will read zero

36. When Q factor of a circuit is high, then -

a) power factor of the circuit is high

b) impedance of the circuit is high

c) bandwidth is large

d) none of these

37. The resolution of a logic analyser is -

a) the maximum number of input channels

b) the minimum duration of the glitch it can capture

c) it's internal clock period

d) the minimum amplitude of input signal it can display

38. A memoryless system is ?

a) causal

b) not causal

c) nothing can be said

d) none

39. An air capacitor is a ?

a) time variant

b) active device

c) time invariant

d) time invariant and passive device

40. Thermistors are made of -

a) pure metals

b) pure insulators

c) sintered mixtures of metallic oxides

d) pure semiconductor

41. Pirani gauge is used to measure ?

a) very low pressures

b) high pressures

c) pressures in the region of 1 atm

d) fluid flow

42. These circuits converts input power at one frequency to output power at a different frequency through one stage conversion ?

a) AC voltage controllers

b) Cyclo converters

c) Phase controlled rectifiers

d) Inverters

43. In a forward voltage Triggering thyristor changes from ?

a) off state to on state

b) on state to off state

c) on state to on state

d) off state to off state

44. A thyristor, when triggered, will change from forward blocking state to conduction state if its anode to cathode voltage is equal to -

a) peak repetitive off state forward voltage

b) peak working off state forward voltage

c) peak working off state reverse voltage

d) peak non-repetitive off state forward voltage

45. Gate characteristic of a thyristor-

a) is a straight line passing through origin

b) is of the type Vg = a + bIg

c) is a curve between Vg and Ig

d) has a spread between two curves of Vg ? Ig

46. A four quadrant operation requires-

a) two full converters in series

b) two full converters connected back to back

c) two full converters connected in parallel

d) two semi converters connected back to back

47. If for a single phase half bridge inverter, the amplitude of output voltage is Vs and the output power is P, then their corresponding values for a single phase full bridge inverter are ?

a) Vs, P

b) Vs/2, P

c) 2Vs, 2P

d) 2Vs, P

48. In an enhancement type MOSFET the output V-I characteristics has ?

a) only an ohmic region

b) only a saturation region

c) only ohmic region at 10 W voltage value followed by a saturation region at higher voltages

d)an ohmic region at large voltage values preceded by a saturation region at lower voltages

49. The energy gap in a semiconductor -

a) increases with temperature

b) remains constant

c) slightly increase with temperature

d) decrease with temperature
50. In an electronic circuit matching means -

a) connecting a high impedance directly to low impedance

b) selection of components which are compatible

c) transferring maximum amount of signal between different kinds of circuits.

d) RC coupled stages
51. P channel FETs are less superior than N channel FETs because

a) They have higher input impedance

b) They have high switching time

c) They consume less power

d) Mobility of electrons is greater than that of holes

52. Small increase in temperature in the CE connected transistor is the -

a) Increase in ICEO

b) Increase in ac current gain

c) Decrease in ac current gain

d) Increase in output resistance

53. An amplifier has a band width of 20 KHz and a midband gain of 50 without feedback. If a negative feedback of 1% is applied then bandwidth with feedback is -

a) 13. 3 KHz

b) 30KHz

c) 10KHz

d) 40KHz

54. The output of a class B amplifier -

a) is distortion free

b) consists of positive half cycles only

c) is like the output of a full wave rectifier

d) comprises short duration current pulses
55. An amplifier with negative feedback -

a) lowers its lower 3 dB frequency

b) raises its upper 3 dB frequency

c) increases its bandwidth

d) all of the above
56. What changes would be necessary in block C if FM signals are to be received -

a) Block becomes redundant

b) A FM detector would be required

c) A high frequency signal generator

d) An additional local oscillator will be needed

57. The main disadvantage of Diode-Transistor logic (DTL) is its-

a) greater speed

b) slower speed

c) average speed

d) none of the above

58. Time delay Dt in digital signals in an SIS O shift register is given by ?

a) Dt = N ? Fc

b) Dt = N ? 1/Fc

c) Dt = 1/N ? Fc

d) Dt = N ? 1/Fc

59. The output Qn is 1 in a JK flip flop and it does not change when clock pulse is applied) The possible combination of Jn and Kn can be ?

(y denotes don't care)

a) y and 0

b) y and 1

c) 0 and y

d) 1 and y

60. Basic memory cell of dynamic RAM consists of ?

a) a flip flop

b) a transistor acting as a capacitor

c) a transistor

d) a capacitance

61. The 2's complement of 10002 is ?

a) 0111

b) 0101

c) 1000

d) 0001

62. Master slave flip-flop is made up of ?

a) two flip flops connected in series

b) two flip flops connected in parallel

c) a debouncer circuit

d) a-D- latch

63. Number of nybbles making one byte is ?

a) 2

b) 4

c) 8

d) 16

64. The intrinsic impedance of free space-

a) is independent of frequency

b) decreases with increase of frequency

c) increases with increase of frequency

d) varies as square root of frequency

65. A system consists of 12 poles and 2 zeroes. Its high frequency asymptote in its magnitude plot has a slope of -

a) ?200 dB/decade

b) ?240 dB/decade

c) ?230 dB/decade

d) ?320 dB/decade

66. Considering the conditions-

1. High loop gain 2. Less ringing

3. Greater damping 4 Negative dB gain margin

System stability requirements would include

a) 1 and 3

b) 1, 2 and 3

c) 1 and 4

d) 2, 3 and 4

67. In the equatorial plane only Geosychronous satellite are launched because it is the only plane which provides ?

a) 24 hour orbit

b) stationary satellite

c) global communication

d) zero-gravity environs

68. Radio Broadcasting is an example of ?

a) space multiplexing

b) time multiplexing

c) frequency multiplexing

d) none of the above

69. PAM signals can be demodulation by using a ?

a) Low pass filters (LPE) alone

b) A Schmitt trigger followed by a LPF

c) A differentiator followed by a LPF

d) A clipper circuit by a LPF

70. In an FDM receiver channels can be separated by using ?

a) AND gates

b) Band pass

c) differentiation

d) Integration

71. The most common modulation system used for telegraphy is-

a) frequency shift keying

b) two ? tone modulation

c) pulse code modulation

d) single tone modulation

72. Use of varoctor diode in generation of modulated segial be-

a) FM generation only

b) 100AM generation only

c) PM generation only

d) both PM and AM generation

73. In colour picture tube shadow mask is used to-

a) reduce x-ray emission

b) ensure that each beam strikes only its own dots

c) increase screen brightness

d) provide degaussing for the screen

74. The circuit that separates composite video warefore from the sync pulses is-

a) the keyed AGC amplifar

b) a clipper

c) an integrator

d) a sawtooth current

75. Band width of microwaves is-

a) 1GHz -103 GHz

b) 1GHz ?100 GHz

c) 1 GHz ?10 GHz

d) 1 GHz ? 106 GHz

76. In transverse Magnetic mode-

a) no electric line is in direction of propagation

b) no magnetic line is in direction of propagation

c) bath magnetic & electric lines are is direction of propagation

d) neither magnetic nor electric lines in direction of propagation

77. Signal transmission in sky wave propagation is due to ?

a) Reforction of wave

b) Reflection of wave

c) Pierus through Inosphere

d) None

78. According to Barkhausen Criterion Phase shift of signal should be ?

a) 600

b) 900

c) 1800

d) 3600

79. The transmission does not have -

a) Partition noise

b) Flicker noise

c) resistance

d) Short noise

80. Varoctor diode has non linearity of -

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b) Inductance

c) Resistance

d) Is a linear device

81. Noise figure is calculated as ?

a) i/p signal to noise ratio X o/p signal to noise ratio

b) i/p S/N Ratio / O/P S/N Ratio

c) i/p S/N Ratio / O/P S/N Ratio X 100

d) i/p S/N Ratio + O/P S/N Ratio

82. You can determine quickly the effect of adding poles and zeros by ?

a) Nicholas chart

b) Nyquist plot

c) Bode plot

d) Root locus.

83. The polar plot of G(S) = intercepts real axis at w = wo. Then, the real part and wo are given by-

a) ?5, 1

b) ?2.5, 1

c) ?5,0-5

d) ?5, 2

84. Laplace transform F (s) of a function f (E) is given by

The initial and final values of F (t) will be respectively-

a) zero and 1

b) zero and 10

c) 10 and zero

d) 70 and 80

85. A satellite link uses different frequencies for receiving and transmitting in order to ?

a) avoid interference from terrestrial microwave links

b) avoid interference between its powerful transmitted signals and weak in coming signal

c) minimize free-space losses

d) maximize antenna gain

86. The first determining factor in selecting a satellite system is its-

a) EIRP

b) Antenna size

c) Coverage area

d) Antenna gain

87. Equalizing pulses in TV are sent during-

a) horizontal blanking

b) vertical blanking

c) the serrations

d) the horizontal retrace

88. The son seems to have -------- from his father a somewhat gloomy and moody manner-

a) washed

b) inherited

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a) washed

b) inherited

c) admired

d) attempt

89. Essayist works with words as sculptor with-

a) water

b) stone

c) air

d) hills

90. What is a collection of sheep called ?

a) bunch

b) flock

c) herd

d) comet

91. Join these sentences meaningfully by choosing the correct alternative from the following :

You can buy a book. You can read it.

a) and

b) nor

c) either

d) neither

92. What is the opposite of Asperity ?

a) gentility

b) superiority

c) kindness

d) clarity

93. The Election Commission functions under-

a) Ministry of Home Affairs

b) Ministry of Law

c) Prime Minister's Secretariat

d) None of these

94. Article 352 of Indian Constitution needs to be revoked in case-

a) President's Rule is to be imposed

b) Emergency is declared

c) Services of a Government servant are to be terminated without any enquiry

d) A political party of national level is to be banned

95. Radio-activity was first discovered by-

a) Becquerel

b) Madam Curie

c) Rutherford

d) Jenner

96. Ninth Plan in India ranges from-

a) 1995-2000

b) 1996-2001

c) 1997-2002

d) 1998-2003

97. How much electricity does India propose to generate through nuclear power by the year 2000 AD?

a) 5,000 MW

b) 10,000 MW

c) 15,000 MW

d) 20,000 MW

98. In which year did the fall of Bastille take place?

a) 1769

b) 1789

c) 1889

d) 1869

99. To form a quorum how many members of the Lok Sabha or Rajya Sabha should be present?

a) 1/10th of total membership

b) 1/6th of total membership

c) 1/4th of total membership

d) 1/5th of total membership

100. How may countries are non-permanent members of the Security Council?

a) 6

b) 7

c) 9

d) 10

101. The International Date Line is represented by-

a) 1000 meridian

b) 00 meridian

c) 1800 meridian

d) 900 meridian

102. India's first satellite was launched from-

a) Sriharikota

b) Cape Kennedy

c) Bangalore

d) A Soviet cosmodrome
103. Name the author of the famous book "Politics"-

a) Aristotle

b) Socrates

c) Plato

d) None of them
104. "Guernica" is Picasso's painting on-

a) The Spanish Civil War

b) The American Civil War

c) The French Revolution

d) The Russian Revolution
105. The object of the Supreme Court's Keshvanand Bharati ruling is -

a) To put a limit on Parliament's amendatory powers

b) To give unlimited powers to Parliament to amend the Constitution

c) To give precedence to Directive Principles over Fundamental Rights

d) None of these
106. Which country in July '99 officially announced mastering of indigenously developed neutron bomb technology?

a) N. Korea

b) France

c) India

d) China

107. Shifting cultivation is commonly used in which of the following states?

a) Tamil Nadu

b) Maharashtra

c) Jammu and Kashmir

d) Nagaland

Objective Type (Multiple Choice)

1. For a parallel plate capacitor which is being charged out of the following the incorrect statement is

a. Energy stored in the capacitor does not enter it through the connecting wire through the space around the wires and plates of capacitor.

b. Rate at which energy flows into this volume is equal to the integration of the pointing vector over the boundary of the volume between the plates.

c. The pointing vector points everywhere radially outward of the volume between plates.

d. The pointing vector points everywhere radially into the volume between the plates.

2. The presence of alkali oxides in alumino silicate ceramics is likely to result in dielectric breakdown due to

a. Polarization
b. Conductivity
c. Structural homogeneties
d. Ionization

3. Which of the following will serve as a donor impurity in silicon

a. Boron
b. Indium
c. Germanium
d. Antimony

4. Electrical contact materials used in switches, brushes and relays must possess

a. High thermal conductivity and high melting point
b. Low thermal conductivity and low melting point
c. High thermal conductivity and low melting point
d. Low thermal conductivity and high melting point

5. The Maximum spectral response of the germanium and silicon is in the

a. infrared region
b. ultraviolet region
c. visible region
d. x-ray region

6. For an insulating material, dielectric strength and dielectric loss should be respectively

a. high and high
b. low and high
c. high and low
d. low and low

7. In a distortion factor meter, the filter at the front end is used to suppress

a. odd harmonics
b. even harmonics
c fundamental component

d. dc component

8. The coefficient of coupling between two air core coils depends on

a. mutual inductance between two coils only
b. self inductances of the two coils only
c. mutual inductance and self inductances of the two coils
d. none

9. Modern capacitors which have high capacitance in small size use a dielectric of

a. paper
b. rubber
c. ceramic
d. Mylar

10. In any atom the potential energy of an orbiting electron is

a. always positive
b. always negative
c. sometime positive, sometime negative
d. numerically less than its kinetic energy

11. A DE MOSFET differs from a JFET in the sense that it has no -

a. channel

b. gate
c. P-N junctions
d. substrate

12. The advantage of a semiconductor strain gauge over the normal strain gauge is that

a. it is more sensitive
b. it is more linear
c. it is less temperature dependent
d. it's cost is low

13. Barrier potential in a P-N junction is caused by

a.thermally generated electrons and holes
b. diffusion of majority carriers across the junction
c. migration of minority carriers across the junction
d. flow of drift current

14. When an NPN transistor is properly biased then most of the electrons from the emitter

a. recombine with holes in the base
b. recombine in the emitter itself
c. pass through the base to the collector
d. are stopped by the junction barrier

15. The value of r when a transistor is biased to cut off is -

a. 0.5
b. 0
c. 1.0
d. 0.8

16. A UJT can

a. be triggered by any one of it's three terminals
b. not be triggered
c. be triggered by two of its three terminal only
d. be triggered by all of its terminals only

17. An SCR can only be turned off via it's

a. cathode
b. anode
c. gates
d. none

18. Gold is often diffused into silicon DN junction devices to

a. increase the recombination rate
b. reduce the recombination rate
c. make silicon a direct gap semiconductor
d. make silicon semi-metal

19. With n nodes and b branches a network will have

a. (b + n) links
b. b - n + 1 links
c. b - n - 1 links
d. b + n + 1 links

20. When a network has 10 nodes and 17 branches in all then the number of node pair voltages would be

a. 7
b. 9
c. 10
d. 45

21. A two port network having a 6 dB loss will give

a. an output power which is one - quarter of the input power
b. an output power which is one - half of the input power
c. an output voltage which is 0.707 of the input voltage
d. an output power which is 0.707 of the input power

22. While transporting a sensitive galvanometer -

a. the terminals are kept shorted
b. critical damping resistance is connected across the terminals
c. the terminals are kept open circuited
d. it does not matter as to what is connected across the terminals

23. A T type attenuator is designed for an attenuation of 40 dB and terminating resistance of 75 ohms. Which of the following values represent full series and R1 and shunt arm R2?

1. R1 = 147W 2. R1 = 153W
3.R2 = 1.5W 4. R2 = 3750W
a. 1 and 3
b. 1 and 4
c. 2 and 3
d. 2 and 4

24. For a transmission line, the characteristic impedance with inductance 0.294mH/m and capacitance 60pF/m is

a. 49w
b. 60w
c. 70w
d. 140w

25. When the graph of a network has six branches with three tree branches then the minimum number of equations required for the solution of the network is

a. 2
b. 3
c. 4
d. 5

26. Consider the following statement for a 2-port network

1. Z11 = Z22 2. h12 = h21
3. Y12 = -Y21 4. BC - AD = -1

then the network is reciprocal if and only if

a. 1 and 2 are correct
b. 2 and 3 are correct
c. 3 and 4 are correct
d. 4 alone is correct

27. As a network contains only independent current sources and resistors then if the values of all resistors are doubled then the values of the node voltages are

a. will become half
b. will remain high
c. will become double

d. cannot be determined unless the circuit configuration and the values of the resistors are known

28. The energy of electric field due to a spherical charge distribution of radius r and uniform charge density d in vacuum is-

Ans. 5.4x109xQ2/r where Q=4/3(pie.r3d

29. Maxwell's divergence equation for the magnetic field is given by

Ans. y

30. When a short grounded vertical antenna has a length L which is 0.05 l at frequency f and if it's radiation resistances at f is R Ohms, then it's radiation resistance at a frequency 2f will be

a. R/2 ohms
b. R ohms
c. 2R ohms
d. 4R ohms

31. In a cylindrical cavity resonator, the two modes which are degenerate would include

a. TE111 and TM111
b. TE011 and TM011
c. TE022 and TM111
d. TE111 and TM011

32. When an antenna of input resistance 73 ohm is connected to a 50-ohm line and if the losses are ignored then it's efficiency will be nearly

a. 0.19
b. 0.81
c. 0.97
d. 1.19

33. If an isolated conducting sphere in air has radius = 1/ 4pqe0 it capacitance will be

a. Zero
b. IF
c. 4pF
d. OF

34. When a dominant mode wave guide not terminated in it's characteristic impedance is excited with a 10 GHz signal then if 'd' is the distance between two successive minima of the standing wave in the guide then

a. d = 1.5 cm
b. d is less then 1.5 cm
c. d is greater than 1.5 cm
d. d = 3cm

35. When a dipole antenna of l/8 length has an equivalent total loss resistance of 1.5 W then the efficiency of the antenna is

a. 0.89159 %
b. 8.9159 %
c.89.159 %
d. 891.59 %

36. In commercial FM broadcasting, the maximum frequency deviation is normally

a. 5 KHz
b. 15 KHz
c. 75 KHz
d. 200 KHz

37. Weins bridge is used for measurement of frequency in the applied voltage waveform is measurement of frequency in the applied voltage waveform is

a. sinusoidal
b. square
c. rectangular
d. triangular

38. Strain gauge is

a. not a transducer
b. an active transducer
c. not an electronic instrument
d. none

39. A high Q coil has

a. large band width
b. high losses
c. low losses
d. flat response

40. In the case of an instrument reading of 8.3V with a 0 to 150 voltmeter having a guaranteed accuracy of 1% full scale reading, the percentage limiting error is

a. 1.810%
b. 0.181%
c. 18.10%
d. 0.0018%

41. The 'h' parameter equivalent circuit of a junction transistor is valid for

a. High frequency, large signal operation
b. High frequency, small signal operation
c.Low frequency, small signal operation
d. Low frequency, large signal operation

42. A system is causal if the output of any time depends only on -

a. Values of input in the past and in the future
b. Values of input at that time and in the past
c. Values of input at that time and in the future
d. None

43. A iron cored choke is a

a. Linear and active device
b. Non linear and passive device
c. Active device only
d. Linear device only

44. Pointing vector wattmeter uses

a. Seebeck effect
b.Ferranti effect
c. Induction effect

d. Hall effect

45. Which one of the following is not a transducer in the true sense ?

a. Thermocouple
b. Piezoelectric pick - up
c. Photo voltaic cell
d. LCD

46. The term used to denote a static device that converts ac to dc, dc to ac, dc to dc or ac to ac is

a. Converter system
b. Inverter
c. Chopper
d. Thyristor

47. It is a unidirectional device that blocks the current flow from cathode to anode

a. SCR
b. PCR
c. VCR
d. DCR

48. An ideal constant current source is connected in series with an ideal constant voltage source. Considering together the combination will be a

a. constant voltage source
b. constant current source
c. constant voltage and a constant current source or a constant power source
d. resistance

49. Anode current in an thyristor is made up of

a. electrons only
b. electrons or holes
c. electrons and holes
d. holes only

50. For a pulse transformer, the material used for its core and the possible turn ratio from primary to secondary are respectively

a. ferrite: 20: 1
b. laminated iron: 1: 1
c. ferrite: 1: 1
d. powdered iron: 1: 1

51. A converter which can operate in both 3 pulse and 6 pulse modes is a

a. 1 phase full converter
b. 3 phase half wave converter
c. 3 phase semi converter
d. 3 phase full converter

52. A single phase CSI has capacitor C as the load. For a constant source current, the voltage across the capacitor is

a. square wave

b. triangular wave

c. step function

d. pulsed wave

53. A single phase full wave midpoint thyristor converter uses a 230/200V transformer with center tap on the secondary side. The P.I.V per thyristor is

a. 100V

b. 141.4V

c. 200V

d. 282.8V

54. In dc choppers for chopping period T, the output voltage can be controlled by FM by varying

a. T keeping Ton constant

b. Ton keeping T constant

c. Toff keeping T constant

d. None of the above

55. From the hot metal surface electrons escape because

a. of change of state from metal to gas due to heat.

b. of change of stats from gas to metal.

c. the energy supplied is greater than the work function

d. the energy is greater than Fermi level.

56. The most common device used for detection in radio receivers is -

a. amplifier

b. triode

c. diode

d. transistor

57. In a full wave rectifier the negative point in a circuit is

a. Either cathode

b. Either anode

c. The central tap on the high voltage secondary

d. Either plate

58. Negative feedback amplifier has a signal corrupted by noise as its input. The amplifier will

a. Amplify the noise as much as the signal

b. Reduce the noise

c. Increase the noise

d. Not effect the noise

59. Match the given feedback circuit with it's proper nomenclatures

a. Current series feedback

b. Current shunt feedback

c. Voltage series feedback

d. Voltage shunt feedback

60. Class A amplifier is used when

a. No phase inversion is required

b. Highest voltage gain is required

c. dc voltages are to be amplified

d. Minimum distortion is desired

61. Identify the correct match for the given transistor

a. Enhancement type P channel MOSFET

b. Depletion type N channel MOSFET

c. Enhancement type N channel MOSFET

d. Depletion type P channel MOSFET

62. In case a signal band limited to fm is sampled at a rate less than 2fm, the constructed signal will be

a. Distortion less

b. Small in amplitude

c. Having higher frequencies suppressed

d. Distorted

63. Quad 2 input AND gates IC No is

a. 7411

b. 7404

c. 7400

d. 7408

64. Registers in which data is entered or taken out in serial form are referred as

a. left shift register

b. right shift register

c. shift registers

d. none of the above

65. The expression ABC can be simplified to

Ans. A + B + C

66. An ideal power supply consist of

a. Very small output resistance

b. Zero internal resistance

c. Very large input resistance

d. Very large output resistance

67. The linearity error for a digital input is indicated by

68. Register and counters are similar in the sense that they both

a. count pulses

b. store binary operation

c. shift registers

d. made from an array of flip flops and gates integrated on a single chip

69. In the 8421 BCD code the decimal number 125 is written as

a. 1111101

b. 0001 0010 0101

c. 7D

d. None of the above

70. In D/A converter, the resolution required is 50mv and the total maximum input is 10v. The number of bits required is

a. 7

b. 8

c. 9

d. 200

71. On differentiation unit impulse function results in

a. Unit parabolic function.

b. Unit triplet.

c. Unit doublet.

d. Unit ramp function.

72. Read the following;

i. Routh Hermitz's criterion is in time domain.

ii. Root locus plot is in time domain.

iii. Bode plot is in frequency domain.

iv. Nyquist criterion is in frequency domain.

a. 2, 3, and 4 are correct

b. 1, 2 and 3 are correct

c. 3 and 4 are correct

d. All four are correct.

73. The maximum phase shift that can be provided by a lead compensator with transfer function.

a. 150

b. 450

c. 300

d. 600

74. The correct sequence of steps required to improve system stability is

a. Insert derivative action, use negative feedback, reduce gain.

b. Reduce gain, use negative feedback, insert derivative action.

c. Reduce gain, insert derivative action, use negative feedback.

d. Use negative feedback, reduce gain, insert derivative action.

75. Identity slope change at w = 10 of the magnitude v/s frequency characteristic of a unity feedback system with the following open-loop transfer function

a. -40dB/dec to -20dB/dec

b. 40dB/dec to 20dB/dec

c. -20dB/dec to -40dB/dec

d. 40dB/dec to -20dB/dec

76. In the feedback control system the loop transfer function is given by

Number of asymptotes of its root loci is

a. 1

b. 2

c. 3

d. 4

77. In a closed - loop transfer function

the imaginary axis intercepts of the root loci will be

78. Considering the following statement:

In a magic tee

1. the collinear arms are isolated from each other

2. one of the collinear is isolated from the E-arm

3. one of the collinear arm is isolated from the H-arm

4. E-arm and H-arm are isolated from each other.

Of these statements

a. 1 and 2 are correct

b. 1 and 3 are correct

c. 1 and 4 are correct

d. 2 and 3 are correct

79. In 1965 first geostationary satellite was launched called

a. ANIK

b. EARLY BIRD (Intel sat -1)

c. WESTAR

d. MOLNIYA

80. --- watt of power is received from sun per m2 surface area of a geosynchronous satellite

a. 100

b. 500

c. 2000

d. 1000

81. The ripple factor in an LC filter

a. Increases with the load current

b. Increases with the load resistance

c. Remains constant with the load current

d. Has the lowest value

82. In different parts of the country identical telephone numbers are distinguished by their

a. Language digits

b. Access digits

c. Area codes

d. Central office codes

83. Amplitude modulation is used for broadcasting because

a. it is move noise immune than other modulation systems

b. compared with other systems it requires less transmitting power

c. its use avoids receiver complexity

d. no other modulation system can provide the necessary bandwidth for high fidelity

84. The amplifiers following the modulated stage in a low level modulation AM system be

a. linear amplifier

b. harmonic generators

c. class C power amplifiers

d. class B untuned amplifiers

85. In a radar system maximum unambiguous range depends on

a. maximum power of the transmitter

b. pulse repetition frequency

c. width of the transmitted pulse

d. sensitivity of the radar receiver

86. In composite video waveform the function of the serrations, is to

a. equalize the charge in the integrator before the start of vertical retrace.

b. help vertical synchronization

c. help horizontal synchronization.

d. simplify the generation of the vertical sync pulse

87. The frequency range 30MHz - 300MHz is

a. medium frequency

b. very high frequency

c. super high frequency

d. Infrared frequency

88. Which wave cannot exist inside wave guide

a. TE

b. TM

c. TEM

d. HE

89. Ionosphere layer of earth is situated at

a. upto 18kms from earth

b. from 18 to 70 km

c. 70 to 500 km

d. above 500 km

90. A two cavity klystron tube is a

a. velocity modulated tube

b. frequency modulated tube

c. Amplitude modulated tube

d. simple triode

91. As the thermal noise get doubled due to the increase in a resistance the noise power get

a. doubled

b. quadrupted

c. unchanged

d. halved

92. Which one is a cross field tube

a. Klystron

b. Reflex Klystron

c. Magnetron

d. TWT

93. The degree of coupling depends on

a. size of hole

b. location of holes

c. size and location of holes

d. not depend on size or location of hole

94. The thermal noise depends on

a. direct current through device

b. resistive component of resistance

c. reactive component of impedance

d. load to connected

95. The charge on a hole is

Ans. 1.6x10-19

96. In a radio receiver the IF amplifier

a. is tuned above the stations incoming frequency

b. amplifies the output of local oscillator

c. is fixed tuned to one particular frequency

d. can be tuned to various isolate frequencies

97. A duplexer is used to

1) couple two antennas to a transmitter without interference

2) isolate the antenna from the local oscillator

3) prevent interference between two antennas connected to a receiver

4) use an antenna for reception or transmission without interference

98. Intel's 8085 microprocessor chip contains

a. seven 8 bit registers

b. 8 seven bits registers

c. seven 7

d. eight 8

99. Boolean algebra is based on

a. numbers

b. logic

c. truth

d. symbols

100. When A = 0, B = 0, C = 1 then in 2 input logic gate we get - - gate

a. XOR

b. AND

c. NAND

d. NOR

101. With the beginnings of space travel, we entered a new - -

a. Era of great history

b. List

c. Book

d. Year

102. An - - though it mourns the death of someone, need not be sad.

a. Funny poem

b. Newspaper article

c. Orthodox talk

d. Elegy

103. If stare is glance so gulp is

a. Sip

b. Tell

c. Salk

d. Admire

104. He hardly works means

a. The work is hard

b. He is hard

c. The work is easy

d. He works very little

105. Give the opposite word for pulchritude

a. antipathy

b. unsightliness

c. inexperience

d. languor

106. Nanometre is - - - - part of a metre.

a. Millionth

b. Ten millionth

c. Billionth

d. Ten billionth

107. Malaria affects

a. Liver

b. Spleen

c. Intestine

d. Lungs

108. Sindhu Rakshak is a/an

a. Aircraft carrier

b. Submarine

c. Multiple-purpose fighter

d. Anti-aircraft gun

109. With which subject is "Dada Saheb Phalke Award" associated?

a. Best film director

b. Best musician

c. Best documentary

d. Best work relating to promotion of Indian film Industry

110. Who developed the branch of mathematics known as Calculus?

a. Aryabhatta

b. Newton

c. Einstein

d. Archimedes

111. In which state is Kanha Park situated?

a. M.P.

b. U.P.

c. Assam

d. W. Bengal

112. Which day is observed as Human Rights Day?

a. 24th October

b. 4th July

c. 8th August

d. 10th December

113. The Kailash Temple at Ellora is a specimen of

a. Gupta architecture

b. Rashtrakuta architecture

c. Chalukya architecture

d. Chola architecture

114. When the two Houses of Parliament differ regarding a Bill then the controversy is solved by

a. Joint sitting of the two Houses
b. President of India
. Prime Minister of India
d. By a special committee for the purpose

115. Which of the following is not the work of Kalidasa?

a. Meghdoot
b. Raghuvansha
c. Sariputra Prakarma
d. Ritushamhara

116.Amir Khusro was the famous poet and aesthete of

a. Akbar the Great
b. Mahmud Ghaznvi
c. Shah Jahan
d. Alauddin Khilji

117. The words 'Satyameva Jayate' have been taken from

a. Vedas
b Bhagwad Gita
c. Mundaka Upanishada
d. Mahabharata
e. None of these

118. Which of the following countries was the first to develop a neutron bomb?

a. USA

b. USSR
c. China
d. Pakistan

119. "Kathakali" dance is connected with

a. Kerala
b. Rajasthan
c. Uttar Pradesh
d. Tamil Nadu

120. The term "Ashes" is associated with
a. Hockey
b. Cricket
c. Soccer

CHEMICAL ENGINEERING

1. Claussius Clapeyron equation applies to the processes of

A) sublimation B) melting

C) vaporization D) all (A), (B) & (C)

2. In azeotropic mixture, the equilibrium vapour composition is

A) Less than liquid composition B) Same as the liquid composition

C) More than liquid composition C) not dependent on pressure

3. The ratio of kinematic viscosity to thermal diffusivity is called the

A) Peelet number B) Prandtl number C) Stanton number D) Nusselt number

MECHANICAL ENGINEERING

1. The natural frequency of an undamped vibrating system is 100 rad/s. A damper with a damping factor of 0.8 is introduced into the system. The frequency of vibration of the damped system, in rad/s, is

A) 60 B) 75 C) 80 D) 100

2. Navier Stokes equation represents the conversation of :

A) energy B) mass C) pressure D) momentum

3. With increasing temperature of intake air IC engine efficiency

A) decreases B) increases

C) remains same D) depends on other factors

ELECTRICAL ENGINEERING

1. wattmeter cannot be designed on the principle of

A) Moving iron instrument

B) Electro-dynamic instrument

C) Electro-static instrument

D) Thermocouple instrument

2. Poynting vector is the

A) current density vector producing electro-static field

B) flux density vector producing electromagnetic field

C) power density vector producing electromagnetic field

D) power density vector producing electro-static field

3. An electromagnetic field is radiated from

A) a stationary point charge

B) a capacitor with DC voltage

C) a conductor carrying DC current

D) an oscillating dipole

ELECTRONICS ENGINEERING

1. matched pair of transistors is particularly useful for

A) Differential amplifier B) High gain amplifier

C) High input impedance amplifier D) Low output impedance amplifier

2. Magnetic flux density can be measured by using

A) ‘Q’ meter B) AC voltmeter C) Hall probe D) Energy meter

3. In closed loop type of A/D conversion the fastest technique is :

A) Successive Approximation B) Flash

C) Dual slope integration D) Counter-ramp

INSTRUMENTATION ENGINEERING

1. A “direct acting” instrument is one where an increasing input produces

A) an increasing output B) a decreasing output

C) a direct increase in the process variable

D) D) a direct decrease in the process variable

2. Cavitation is caused by

A) high velocity B) high pressure C) low pressure

D) low velocity

3. The gain of an operational amplifier will be maximum

A) with DC B) at 1 Hz C) at 100 Hz D) at 1 MHz

COMPUTER SCIENCE

1. Which of the following is the fastest logic family

A) TTL

B) CMOS

C) NMOS

D) ECL

2. In computer networks, file compression is done in

A) Physical layer

B) Presentation layer

C) Data link layer

D) Session layer

(PAPER) DRDO Sample Questions- (Govt. Org.)

(PAPER) DRDO Sample Questions- (Govt. Org.)

It contained 2 parts
PART 1 - pure technical 100 ques.
Part 2 - 50 Ques.

Part 1 was purely technical but I was hard 2 answer part 2 general Knowledge abt 20-25ques were from maths remaining from general.They collected the question paper back. Iam herewith attaching some of the questions that noted down at hall.

1. If 100ns is Memory Access Time & 125 microsec is 1frame period. The no. of line that can be supported in a Time Divison Switch is

a)125 Lines

b)625 Lines

c)525 Lines

d)465 Lines

2. The no. of edjes in disjoint Hamilton circuit in a complex graph with 17 edges is

a) 8

b) 9

c) 136

d) 17^2

3. 15 persons in a club sit every day ina dinner table such that every member has different neighbour. This arrangement will last for how many days.

Assume a system has 16MB cache mean Disk Access Time & cache Access time is 76.5 ns & 1.5 overall mean Access time us 465ms for each tripling the memory the miss rate is halved. The memory required to bring down the mean Access time to 24ns is

a) 16 MB

b) 24 MB

c) 32 MB

d) 48 MB

4.Average transfer speed of a i/p serial line is minimum 25,000 Bytes & maximum 60000 Bytes. Polling Strategy adopted takes 4microsec(whether there is any i/p byte or not). It is assured that byte that retrived from controller before next byte arrives are lost. Then the maximum safe polling interveal is

a) 12

b) 12.33

c) 12.67

d) 32

5. A harddisk has a rotation speed of 4500RPM. then the latency time is

a) .4

b) .6

c) .7

d) .9

6.Suppose all elements above the principal diagonal od n x n matix A are zero. If non zero elements of the lower triangular Matrix is stored in an array B with A[1][1] stored at

B[1]. The addressing formula to the nonzero element in A[i][j]=?

a) A[i][j]

b) i(j-1)/2 +i

c) j(i-1)/2 +i

d) i(i-1)/2 +j

7.The minumum number of comparisons requied to find the second smallest element in a 1000 element array is

a) 1008

b) 1010

c) 1999

d) 2000

8.The internal path length of a Bonary Tree with 10nodes is 25. The external path length is

a) 25

b) 35

c) 40

d) 45

9.Average No. of Comparisons required to sort 3 elements is

a) 2

b) 2.33

c) 2.67

d) 3

10.In a switch the mean arrival rate of packets is 800 Packets/sec and the the mean service rate is 925 Packets/sec

a) .008 Sec

b) .08 sec

c) .8 sec

d) 1.1 sec

11. What is Interface Control Information?

12. The minumum no. of Multiplications needed to compute x^768 is

a) 9

b) 10

c) 425

d) 767

13. Find values for a,b,c,d

c 1 1 1

0 a 1 b

_____

1 0 d 0

(967)basex = 321base9

PART II Genreal 50 General Non-Technical[4 Options]

14. The area of red planet where the Mars Rover Landed? In Which Day world Telecom Day Celebrated? Laser is used for what?

a) Treatment of Cancer

b) Treatment of Eyes

c) Treatment of Heart

d) Treatment of Kidney

15.Which country is not a Member of SAARC

a) Bangladesh

b) Myanmar

c) Maldives

d) Nepal

The New Biotechnology Software intorduced by TCS is?

16.The New Biotechnology Software intorduced by TCS is? What is Wi Fi?

17.Which is the fastest Cruise Missile?