Part 1

1.The current I in the given network.
a) 1A b) 3A c) 5A d) 7A

2.For the Delta- Wye transformation in given figure, the value of the resistance R is.
a) 1/3 ohms b) 2/3 ohms c) 3/2 ohms d) 3 ohms

3.In the given network, the Thevenin's equivalent as seen by the load resistance Rl is
a) V=10 V, R= 2ohms b) V=10V, R=3 ohms c) V=15V, R= 2ohms d) V=15V, R=3 ohms

4.The current I in a series R-L circuit with R=10 ohms and L=20mH is given by i=2sin500t A. If v is the voltage across the R-L combination then i
a) lags v by 45 degree b) is in-phase with v c) leads v by 45 d) lags v by 90

5.In thr given network, the mesh current I and the input impedance seen by the 50 V source, respectively, are
a) 125/13 A and 11/8 ohms b) 150/13 A and 13/8 ohms c) 150/13 A and 11/8 ohms d) 125/13 A and 13/8 ohms

6.A voltage sourcehaving a source impedance Z = R + jX can deliver maximum Average power to a load impedance Z, when
a) Z = R + jX b) Z = R c) Z = jX d) Z = R –jX

7.In the given circuit, the switch S is closed at t=0. Assuming that there is no initial Charge in the capacitor, the current i(t) for t>0 is
a) V/R e^ (-2t/RC) b) V/R e^ (-t/RC) c) V/2R e^ (-2t/RC) d) V/2R e^ (-t/RC)

8.For the circuit in given figure, if e(t) is a ramp signal, the steady state value of the Output voltage v(t) is
a) 0 b) LC c) R/L d) RC

9.For the series RLC circuit in given figure, if w=1000 rad/sec, then the current I (in Amperes) is
a) 2 ∟-15 b) 2 ∟15 c) √2∟-15 d) √2∟15

10.The Y-parameter matrix (mA/V) of the two-port given network is
a) [2 -1 -1 2] b) [2 1 -1 2] c) [1 -2 -1 2] d) [2 1 1 2]

11.The maximum number of trees of the given graph is
a) 16 b) 25 c) 100 d) 125

12.Given figure shows a graph and one of its trees. Corresponding to the tree, the group of branches that CAN NOT constitute a fundamental cut set is
a) 1,2,3 b) 1,4,6,8,3 c) 5,6,8,3 d) 4,6,7,3

13.The Y-parameter matrix of a network is given by Y=[1 1 -1 1] A/V. The Z11 parameter of the same network is
a) ½ ohms b) 1/√2 ohms c) 1 ohms d) 2 ohms

14.For the given circuit, the switch was kept closed for a long time before opening it at t=0. The voltage v(0+) is
a) -10 V b) -1 V c) 0V d) 10 V

15.The input impedance of a series RLC circuit operating at frequency W=√2w, w being the resonant frequency, is
a) R-j(wL/√2) ohms b) R+j(wL/√2) ohms c) R-j√2wL ohms d) R-j√2wL ohms

16.The threshold voltage V is negative for
a) an n-channel enhancement MOSFET b) an n-channel depletion MOSFET c) an p-channel depletion MOSFET d) an p-channel JFET

17.At a given temperature, a semiconductor with intrinsic carrier concentration ni= 10 ^ 16 / m^3 is doped with a donor dopant of concentration Nd = 10 ^ 26 /m^3. Temperature remaining the same, the hole concentration in the doped semiconductor is
a) 10 ^ 26 /m^3 b) 10 ^ 16 /m^3 c) 10 ^ 14 /m^3 d) 10 ^ 6 /m^3}

18.At room temperature, the diffusion and drift constants for holes in a P-type semiconductor were measured to be Dp = 10 cm^2/s and µp = 1200 cm^2/V-s, respectively. If the diffusion constant of electrons in an N-type semiconductor at the same temperature is Dn = 20 cm^2/s, the drift constant for electrons in it is
a) µn = 2400 cm^2/V-s b) µn = 1200 cm^2/V-s c) µn = 1000 cm^2/V-s d) µn = 600 cm^2/V-s

19.A common LED is made up of
a) intrinsic semiconductor b) direct semiconductor c) degenerate semiconductor d) indirect semiconductor

20.When operating as a voltage regulator, the breakdown in a Zener diode occurs due to the
a) tunneling effect b) avalanche breakdown c) impact ionization d) excess heating of the junction.

21.If the common base DC current gain of a BJT is 0.98, its common emitter DC current gain is
a) 51 b) 49 c) 1 d) 0.02

22.Negative resistance characteristics is exhibited by a
a) Zener diode b) Schottky diode c) photo diode d) Tunnel diode

23.Let En and Ep, respectively, represent the effective Fermi levels for electrons and holes during current conduction in a semiconductor. For lasing to occur in a P-N junction of band-gap energy 1.2 eV, (En - Ep) should be
a) greater than 1.2eV b) less than 1.2eV c) equal to 1.1eV d) equal to 0.7eV

24.In a P-well fabrication process, the substrate is
a) N-type semiconductor and is used to build P-channel MOSFET
b) P-type semiconductor and is used to build P-channel MOSFET
c) N-type semiconductor and is used to build N-channel MOSFET
d) P-type semiconductor and is used to build N-channel MOSFET

25.In a MOS capacitor with n-type silicon substrate, the Fermi potential ¢ = -0.41 V and the flat-band voltage Vfb = 0V. The value of the threshold voltage Vt is
a) -0.82 V b) -0.41 V c) 0.41 V d) 0.82

Refer given figure for question 26 and 27. Assume D1 and D2 to be ideal diodes.
26.Which one of the following statements is true?
a) Both D1 and D2 are ON.

b) Both D1 and D2 are OFF.
c) D1 is ON and D2 is OFF.
d) D2 is ON and D1 is OFF.

27.Values of Vo and I, respectively, are
a) 2V and 1.1 mA b) 0V and 0 mA c) -2V and 0.7 mA d) 4V and 1.3 mA

28.In a BJT CASCODE pair, a
a) common emitter follows a common base
b) common base follows a common collector
c) common collector follows a common base
d) common base follows a common emitter

29.Inside a 741 op-amp, the last functional block is a
a) differential amplifier b) level shifter c) class-A power amplifier d) class-AB power amplifier

30.For the MOSFET in the given circuit, the threshold voltage Vt = 0.5V, the process parameter KP = 150 µA/V^2 and W/L = 10. The values of Vd and Id, respectively, are
a) Vd = 4.5 V and Id = 1 mA
b) Vd = 4.5 V and Id = 0.5 mA
c) Vd = 4.8 V and Id = 0.4 mA
d) Vd = 6 V and Id = 0 mA
31.A negative feedback is applied to an amplifier with the feedback voltage proportional to the output current. This feedback increases the
a) input impedance of the amplifier b) output impedance of the amplifier c) distortion in the amplifier d) gain of the amplifier
32.The early effect in a BJT is modeled by the small signal parameter
a) r0 b) r∏ c) gm d) β
33.For a given filter order, which one of the following type of filters has the least amount of ripple both in pass-band and stop-band?
a) Chebyshev type I b) Bessel c) Chebyshev type II d) Elliptic
34.For a practical feedback circuit to have sustained oscillation, the most appropriate value of the loop gain T is
a) 1 b) -1 c) -1.02 d) 1.02
35.Assume the op-amps in given figure to be ideal. If the input signal vi is a sinusoid of 2V peak-to-peak and with zero DC component, the output signal vo is a
a) sine wave b) square wave c) pulse train d) triangular wave
36.In a common source amplifier, the mid-band voltage gain is 40 dB and the upper cutoff frequency is 150kHz. Assuming single pole approximation for the amplifier the unity gain frequency fT is
a) 6 MHz b) 15 MHz c) 150 MHz d) 1.5 GHz
37.An op-amp is ideal except for finite gain and CMRR. Given the open loop differential gain

Ad=2000, CMRR = 1000, the input to the noninverting terminal is 5.002 V and the input to the inverting terminal is 4.999 V, the output voltage of the op-amp is

a) 14 V b) 24 V c) -6 V c) -8 V

38.The op-amp in the circuit in given figure has a non-zero DC offset. The steady state value of the output voltage Vo is
a) –RC dvs(t)/ dt b) – (1/RC)|vs(t)dt c) –V d) +V

39.For the circuit in given figure, if the value of the capacitor C is doubled, the duty-cycle of the output waveform Vo
a) increases by a factor of 2 b) increases by a factor of 1.44 c) remains constant d) decreases by a factor of 1.44

40.Assume the op-amp in the given circuit to be ideal. The value of the output voltage Vo is
a) 3.2 Vi b) 4 Vi c) 9 Vi d) 10 Vi

41.The complement of the Boolean expression $F = (X + \bar{Y} + Z)(\bar{X} + \bar{Z})(X + Y)$ is
a) $XYZ+X\bar{Z}+\bar{Y}Z$ b) $\bar{X}Y\bar{Z}+XZ+\bar{X}\bar{Y}$ c) $\bar{X}Y\bar{Z}+XZ+YZ$ d) $XYZ+\bar{X}\bar{Y}$

42.The Boolean function F(A,B,C,D) = ∑(0,6,8,13,14) with don't care conditions d(A,B,C,D) = ∑(2,4,10) can be simplified to
a) $F = \bar{B}\bar{D}+C\bar{D}+AB\bar{C}$ b) $F = \bar{B}\bar{D}+C\bar{D}+AB\bar{C}D$ c) $F = A\bar{B}\bar{D}+C\bar{D}+AB\bar{C}$ d) $F = \bar{B}\bar{D}+C\bar{D}+ABCD$

43.The Boolean function $F = \bar{A}\bar{D}+\bar{B}D$ can be realized by one of the following figures

44. For the multiplexer in given figure, the Boolean expression for the output Y is
a) $\bar{A}\bar{B}+\bar{B}\bar{C}+AC$ b) $A\bar{B}+\bar{B}\bar{C}+A\bar{C}$ c) $A\bar{B}+\bar{B}C+AC$ d) $\bar{A}\bar{B}+\bar{B}C+\bar{A}C$

45. Which one of the following is TRUE?
a) Both latch and flip-flop are edge triggered.
b) A latch is level triggered and a flip-flop is edge triggered.
c) A latch is edge triggered and a flip-flop is level triggered.
d) Both latch and flip-flop are level triggered.

46. In a schottky TTL gate, the Schottky diode
e) increases the propagation delay
f) increases the power consumption
g) prevents saturation of the output transistor
h) keeps the transistor in cutoff region

47. For which one of the following ultraviolet light is used to erase the stored contents
a) PROM b) EPROM c) EEPROM d) PLA

48. Which one of the following is NOT a synchronous counter
a) Johnson counter b) Ring counter c) Ripple counter d) Up-down counter

49. In 8085 microprocessor, the accumulator is a
a) 4 bit register b) 8 bit register c) 16 bit register d) 32 bit register
50. In the register indirect addressing mode of 8085 microprocessor, data is stored
a) at the address contained in the register pair
b) in the register pair
c) in the accumulator
d) in a fixed location of the memory

51. The output w[n] of the system shown in given figure is
a) x[n] b) x[n-1] c) x[n] – x[n-1] d) 0.5(x[n-1] + x[n])

52. Which one of the following is a periodic signal
a) x(t) = 2 e^j(t+(π/4)) b) x[n] = u[n] + u[-n] c) x[n] = ∑{∂[n-4k]-∂[n-1-4k]} where k = -∞to ∞ d) x(t) = e^ (-1+j)t

53. If the input-output relation of a system is y(t) = ∫x(t) dt where t = -∞ to 2t
a) linear, time-invariant and unstable
b) linear, non-causal and unstable
c) linear, causal and time invariant
d) non-causal, time invariant and unstable

54. Which one of the can be the magnitude of the transfer function | H(jw) | of a causal system

55. Consider the function H(jw) = H1(w) + jH2(w), where H1(w) is an odd function and H2(w) is an even function. The inverse Fourier transform of H(jw) is
a) a real and odd function
b) a complex function
c) a purely imaginary function
d) a purely imaginary and odd function

56. The laplace transform of given signal is
a) –A((1-e^cs)/s) b) A((1-e^cs)/s) c) A((1-e^-cs)/s) d) –A((1-e^-cs)/s)

57. If X(z) is the z-transform of x[n] = (1/2)^ |n|, the ROC of X(z) is
a) |z| > 2 b) |z| <>

58. In a linear phase system, τg the group delay and τp the phase delay are
a) constant and equal to each other b) τg is a constant and τp is proportional to w c) a constant and τg is proportional to w d) τg is proportional to w and τp is proportional to w

59. A signal m(t), band-limited to a maximum frequency of 20 kHz is sampled at a frequency fs kHz to generate s(t). An ideal low pass filter having cut-off frequency 37 kHz is used to reconstruct m(t) from s(t). The maximum value of fs required to reconstruct m(t) without

distortion is
a) 20 kHz b) 40kHz c) 57 kHz d) 77 kHz

60. If the signal x(t) shown in given figure is fed to an LTI system having impulse response h(t) as shown in given figure, the value of the DC component present in the output y(t) is
a) 1 b) 2 c) 3 d) 4

61. The characteristic equation of an LTI system is given as s^3 + Ks^2 + 5s + 10. When the system is marginally stable, the value of K and the sustained oscillation frequency w, respectively, are
a) 2 and 5 b) 0.5 and √5 c) 0.5 and 5 d) 2 and √5

62. The time required for the response of a linear time-variant system to reach half the final value for the first time is
a) delay time b) peak time c) rise time d) decay time

63. The signal flow graph of the given network is

64. Let c(t) be the unit step response of a system with transfer function K(s+a)/(s+K). If c(0+)=2 and c(∞)=10, then the values of a and K, respectively, are
a) 2 and 10 b) -2 and 10 c) 10 and 2 d) 2 and -10

65. The loop transfer function of an LTI system is G(s)H(s)= K(s+1)(s+5) / s(s+2)(s+3). For K>0, the point on the real axis that DOES NOT belong to the root locus of the system is
a) -0.5 b) -2.5 c) -3.5 d) -5.5

66. The state space equation of the circuit shown in given figure for x1=v0, x2=I is

67. The open loop gain of a unity feedback system is G(s)=wn^2 / s(s+2wn). The unit step response c(t) of the system is

69. The angles of the asymptotes of the root loci of the equation s^3 + 5s^2 + (K+2)s + K = 0, for 0<=K<∞, are
a) 0 and 270 b) 0 and 180 c) 90 and 270 d) 90 and 180

70. The bode plot corresponding to a proportional derivative controller is the one shown in given figure

71. In frequency modulation, the instantaneous
a) amplitude of the carrier signal is varied with the instantaneous amplitude of the message signal
b) amplitude of the carrier signal is varied with the instantaneous frequency of the message signal
c) frequency of the carrier signal is varied with the instantaneous amplitude of the message signal
d) frequency of the carrier signal is varied with the instantaneous frequency of the message

signal

72. If X is a zero mean Gaussian random variable, then P{X<=0} is
a) 0 b) 0.25 c) 0.5 d) 1

73. If a single-tone amplitude modulated signal at a modulation depth of 100% transmits a total power of 15W, the power in the carrier component is
a) 5W b) 10W c) 12W d) 15W

74. In a superheterodyne receiver, rejection of the image signal can be achieved by using a
a) higher local oscillatorn frequency b) crystal oscillator c) narrow band IF filter d) narrow band filter at RF stage

75. The number of bbits per sample of a PCM system depends upon the
a) sampler type b) quantizer type c) number of levels of the quantizer d) sampling rate

76. Which one of the following is used for the detection of AM-DSB-SC signal
a) Ratio detector b) Foster-Seeley discriminator c) Product demodulator d) Balanced-slpoe detector

77. Which one of the following signal pairs can represent a BPSK signal
a) A cos2πfct, A sinπfct
b) A cos2πfct, - A sinπfct
c) - A cos2πfct, A sinπfct
d) A sin2πfct, A cosπfct

78. Which one of the following can be used for the detection of the noncoherent BPSK signal
a) matched filter b) phase-locked loop c) envelope detector
d) product demodulator

79. Bits of duration Tb are to be transmitted using a BPSK modulation with a carrier of frequency Fc Hz. The power spectral density of the transmitted signal has the first null at the normalized frequency
a) |F – Fc|Tb = 0 b) |F – Fc|Tb = 1 c) |F – Fc|Tb = 2 d) |F – Fc|Tb = 4

80. The probability of bit error of a BPSK modulation scheme, with transmitted signal energy per bit Eb, in an additive white Gaussian noise channel having one-sided power spectral density N0, is
a) (1/2) erfc(Eb/2N0) b) (1/2) erfc√(Eb/2N0) c) (1/2) erfc(Eb/N0) d) (1/2) erfc√ (Eb/N0)

81. For a given transmitted pulse p(t), 0<=t<=T, the impulse response of a filter matched to the received signal is
a) –p(t-T), 0<=t<=T b) –p(T-t), 0<=t<=T c) p(t-T), 0<=t<=T d) p(T-t), 0<=t<=T

82. The multiple access communication scheme in which each user is allocated the full available channel spectrum for a specified duration of time is known as

a) CDMA b) FDMA c) TDMA d) MC-CDMA

83. GSM system uses TDMA with
a) 32 users per channel b) 16 users per channel c) 8 users per channel d) 4 users per channel

84. If Rx(τ) is the auto-correlation function of a zero-mean wide-sense stationary random process X, then which one of the following is NOT true?
a) Rx(τ) = Rx(-τ) b) Rx(τ) = -Rx(-τ) c) σx^2 = Rx(0) d) |Rx(τ)| <=Rx(0)

85. If E denotes the expectation operator, then E[X-EX]^3 of a random variable X is
a) EX^3 – E^3X b) EX^3 + 2E^3X – 3EX Ex^2 c) 3EX^3 – E^3X d) 2EX^3 + E^3X – 3EX EX^2

86. A discrete memoryless source produces symbols m1,m2,m3 and m4 with probabilities 1/2, 1/4 , 1/8 and 1/8, respectively. The entropy of the source is
a) ¼ b) 1 c) 7/4 d) 2

87. A channel has a signal-to-noise ratio of 63 and bandwidth of 1200 Hz. The maximum data rate that can be sent through the channel with arbitrary low probability of error is
a) 600 bps b) 1200 bps c) 4800 bps d) 7200 bps

88. For the vectors A = X ax + Y ay and B = Z az, del . (A X B) is
a) 0 b) 1 c) XZ d) YZ

89. Which one of the following relations represents Strokes' theorem (symbols have their usual meaning)?
a) ∫s del X A.ds = 0 b) ∫L A.dl = ∫s del X A.ds c) ∫s A X dS = -∫v (del X A)dv d) ∫v del.Adv = ∫s A.ds

90. Which one of the following relations is not correct (symbols have their usual meaning)?
a) del X E = - ∂B/∂t b) del X H = J + ∂E/∂t c) del.D = ρv d) del.B = 0

91. The electric field component of a uniform plane wave propagating in a lossless magnetic dielectric medium is given by E(t,z)=ax 5cos(10^9 t – 20/3 z)V/m. If η0 represents the intrinsic impedance of the free space, the corresponding magnetic field component is given by
a) H(t,z)= ay 5/2 η0 cos(10^9t – 20/3 z)A/m
b) H(t,z)= ay 10/ η0 cos(10^9t – 20/3 z)A/m
c) H(t,z)= az 5/2 η0 cos(10^9t – 20/3 z)A/m
d) H(t,z)= az 10/ η0 cos(10^9t – 20/3 z)A/m

92. The skin depth of a non-magnetic conducting material at 100 MHz is 0.15 mm. The distance which a plane wave of frequency 10 GHz travels in this material before its amplitude reduces by a factor of e^-1 is
a) 0.0015 mm b) 0.015 mm c) 0.15 mm d) 1.5 mm

93. A lossless transmission line has a characteristic impedance of 100 ohms and an inductance

per unit length of 1 μH/m. If the line is operated at 1 GHz, the propagation constant β is
a) 2π rad/m b) 20π/3 rad/m c) 20π rad/m d) 2π *10^5 rad/m

94. When a load resistance Rl is connected to a lossless transmission line of characteristic impedance 75 ohms, it results in a VSWR of 2. The load resistance is
a) 100 ohms b) 75√2 ohms c) 120 ohms d) 150 ohms

95. A two-port network characterized by the S-parameter matrix, [S] = [0.3 L0 0.9 L90

0.9 L90 0.2 L0]

Is

a) both reciprocal and lossless b) reciprocal, but not lossless c) lossless, but not reciprocal d) neither reciprocal nor lossless

96. A lossless air filled rectangular waveguide has internal dimensions of a cm * b cm. If a=2b and the cutoff frequency of the TE02 mode is 12 GHz, the cutoff frequency of the dominant mode is
a) 1 GHz b) 3 GHz c) 6 GHz d) 9 GHz

97. A Hertzian dipole antenna is placed at the origin of a coordinate system and it is oriented along z-axis. In which one of the following planes the radiation pattern of the antenna has a circular shape?
a) x=0 b) y=0 c) z=0 d) ø=45

98. Which one of the following statements is not true?
a) Antenna losses are taken into account in calculating its power gain
b) For an antenna which does not dissipate any power, the directive gain and the power gain are equal
c) Directivity of an antenna is the maximum value of its directive gain
d) The directive gain of a Hertzian dipole is same in all direction

99. The directivity of a half dipole antenna is
a) 1.0 b) 1.5 c) 1.64 d) 2

100. Which one of the following is not true for a step index optical fibre?
a) It can support multiple modes
b) HE11 mode is its lowest order mode
c) The refractive index of the cladding is higher than that of the core
d) At a given wavelength, single mode operation is possible by proper choice of core diameter, core and cladding refractive indices.

GENERAL ABILITY TEST

101. Sarnath is situated in the state of
a) MP b) Bihar c) Punjab d) UP

102. Green house effect is due to the increase of atmospheric
a) CO_2 level b) SO_2 level c) CO level d) N_2 level

103. In the month of July, it is winter in
a) New York b) Beijing c) Sydney d) London

104. The chairman of the Planning commission of India is
a) The prime minister b) The vice-president c) The union finance minister d) The union commerce minister

105. The satellite launch vehicle that placed a number of satellites ito orbit in May 2008 is
a) PSLV-C7 b) PSLV-C8 c) PSLV-C9 d) PSLV-C10

106.DRDO was formed in
a) 1947 b) 1950 c) 1954 d) 1958

107. SAMYUKTA is developed for the use of
a) Navy b) Army c) Air force d) RAC

108. DARL 202 is a variety of
a) pea b) garlic c) capsicum d) tomato

109. TRISHUL is
a) a surface to surface battlefield missile
b) a quick reaction surface to air missile
c) an intermediate range ballistic missile
d) a supersonic cruise missile

110. HUMSA is a
a) sonar b) tank c) mine d) night vision device

111. The value of 1+2i / 3-4i + 2-I / 5i , where i^2 is -1, is
a) -5/2 b) 5/2 c) 2/5 d) -2/5

112. The particular solution of the differential equation d^2y/dx^2 + 2 dy/dx + 5y = 0 satisfying the conditions y(0)=0 and y'(0)=1 is
a) y=1/2 e^-x cos2x b) y=1/2 e^-x sin4x c) y=1/2 e^-x sin2x d) y=1/2 e^-x cos4x

113. For the vectors A=3i-2j+k and B=2i-k, the value of (A*B).A is
a) 0 b) 1 c) 2 d) 3

114. The orthogonal trajectory of the family of curves x^2-y^2 = a (where a is a constant) and passing through the point (1,1) is

a) $y=-1/x$ b) $y=1/x$ c) $y=-x$ d) $y=x$
115. The value of the line integral ∫ y^2 dx + 2xydy over the curve x=accost, y=asint is
a) 0 b) 1 c) 2 d) 4

116. The n-th partial sum of the infinite series 1/1*2 + 1/2*3 + 1/3*4+……1/n*(n+1)……..
a) 1/n+1 b) n+2/n+1 c) n/n+1 d) n-1/n+1

117. The complex-valued function f(z)=e^z is analytic for
a) no z b) all z c) real z only d) imaginary z only
118. The inverse of the matrix [cos A sin A
-sin A cos A] is

a) [-cos A Sin A b) [cos A sin A} c) [cos A -sin A d) [cos A -sin A
sin A cos A] sin A -cos A] -sin A cos A] sin A cos A]

119. Consider the function f(x) defined as
F(x) = 3x-1, x<0
0, x=0
2x+5, x>0
In the following table, List I shows 4 expressions for limits of f(x) and List II indicates the values of the limits
List I List II
P.Lim x->2 f(x) 1. -1
Q.Lim x->0+ f(x) 2. 9
R.Lim x->0- f(x) 3. -10
S.Lim x->-3 f(x) 4. 5
The correct matches are
a) P-2,Q-4,R-1,S-3 B) P-2,Q-4,R-3,S-1 C) P-4,Q-2,R-1,S-3 D) P-4,Q-2,R-3,S-1

120. Two events A and B with probability 0.5 and 0.7, respectively, have joint probability of 0.4. The probability that neither A nor B happens is
a) 0.2 b) 0.4 c) 0.6 d) 0.8

121. Consider the differential equation
X^2 d^2/dx^2 + x dy/dx + (x^2 - 4)y = 0. The statement which is not true for it is
a) It is a linear second order ordinary differential equation
b) It can not be reduced to a differential equation with constant coefficients
c) X=0 is a regular singular point
d) It is a non-homogeneous second order ordinary differential equation

122. The sum of two numbers is 16 and the sum of their squares is a minimum. The two numbers are
a) 10,6 b) 9,7 c) 8,8 d) 5,11

123. The value of the definite integral 0∫(π/2)^(1/3) x^2 sin(x^3)dx is
a) -1/3 b) 0 c) 1 d) 1/3

124. A circle C2 is concentric with the circle C1 : x^2 + y^2 -4x +6y -12 =0 and has a radius twice that of C1. The equation of the circle C2 is
a) x^2 + y^2 -4x +6y -13 =0 b) x^2 + y^2 -4x +6y -87 =0 c) x^2 + y^2 -4x +6y -100 =0 d) x^2 + y^2 -4x +6y -88 =0

125. Consider the quadratic equation x^2 + px + q =0. If p and q are roots of the equation, the values of p and q are
a) p=0, q=0 only b) p=1, q=-2 only c) p=0, q=0 and p=1, q=-2 d) p=0, q=0 and p=-2, q=1

126. Consider the list of words: etiquette, accommodate, forty, exaggerate, continous, independent, receipt. The number of misspelt words are
a) 1 b) 2 c) 3 d) 4

127. Consider the following sentences
1. A few friends he has are all very rich.
2. Do not insult the weak.
3. The later of the two persons was more interesting.
4. All the informations were correct.
Out of these sentences, the grammatically correct sentence is
a) 1 b) 2 c) 3 d) 4

128. The appropriate auxiliary verb to fill in the blank of the sentence "Gandhi knew that he __ soon be jailed."is
a) would b) will c) shall d) may

129. The number of missing punctuation marks in the sentence "Rajesh along with Amit went to the market."is
a) 0 b) 1 c) 2 d) 3

130. The meaning of the word PLAGIARISM is
a) theft of public money b) theft of ideas c) belief in one god d) belief in many gods

132. ACROPHOBIA is the abnormal fear of
a) open spaces b) height c) fire d) water

133. The appropriate pair of prepositions to fill in the blank in the sentence "He was angry __ me, because my remarks were aimed __ him."is
a) at,to b) with, at c) with, to d) at, for

134. The appropriate word(s) to fill up the blank in the sentence " I remember __ voices in the middle of the night."is (are)
a) hear b) to hear c) hearing d) heard

135. The passive voice form of the sentence "I have known him for a long time."is
a) He is known to me for a long time.

b) He is known by me for a long time.
c) He has been known to me for a long time.
d) He has been known by me for a long time.

136. If kennel is to a dog, then __ is to a hen.
a) nest b) coop c) hole d) stable

137. If NATION is to 5236765, then NOTION is to
a) 573675 b) 563765 c) 576375 d) 557365

138. The next two numbers of the series 3,5,11,21 are
a) 34 and 52 b) 34 and 53 c) 35 and 52 d) 35 and 53

139. A, B and C are three places in India with longitudes 80E, 85 E and 90 E respectively. Which one of the following statements about the local times of the places is true?
a) Local time of C is ahead of that of B.
b) Local time of B is ahead of that of C.
c) Local time of A is ahead of that of C.
d) A, B and C all have the same local time.

140. In this question, notations +, / and * are used as follows
A + B means A is the husband of B.
A / B means A is the sister of B.
A * B means A is the son of B.
With these relations, the relationship
denoted by P / Q * R is
a) P is son of R
b) P is daughter of R
c) P is uncle of R
d) P is father of R

141. If DELHI is written as EDHIL, then PARIS is written as
a) APRIS b) SARIP c) SAPIR d) APISR

142. The number of prime numbers between 10 and 50 is
a) 10 b) 11 c) 12 d) 13

143. The odd one in the list : LAN, TCP/IP, HACKER and KILLER is
a) LAN b) TCP/IP c) KILLER d) HACKER

144. SAW is to carpenter as SCALPEL is to
a) surgeon b) mason c) plumber d) tailor

ANSWERS

1) d)Uttarpradesh
2) a) co2
3) c) sydney
4) a) prime minister
5) c) PSLV C9
6) d) 1958
7) b) army
8) don't know
119) b) quick reaction surface to air missile
110) a) sonar
111 to 25 simple math problem
126) d) 4
127) might be sentence 2
128) b) will
129) c) 2
130) b) theft of ideas
131) c) permanent
132) b) height
133) b) with,at
134)b) to hear
135)d) he has been known by me for a long time
136) b) coop
137)a) 573675
138)d) 35,53
139)a) local time of C is ahead of that of B(not confirmed)
140) b) P is daughter of R
141) d) APISR
142) b) 11
143) c) killr
144) a) surgeon
145)d)
146) c)
147) b)
148) c)
149) b)
150) c)

DRDO Placement Paper Model For ECE (Technical)

DRDO Placement Paper Model For ECE (Technical)

Direct Theory question:

1. A triangular-square wave generator uses
* A sine wave oscillator and a comparator
* An integrator and a comparator
* A differentiator and comparator
* A sine wave oscillator and a clipper

2. An amplifier has two identical cascaded stages. Each stage has a BW of 20KHz. The overall BW shall be
* 10KHz
* 12.9KHz
* 20KHz
* 28.3HHz

Direct numerical problem:

1. A parabolic dish antenna has a diameter of 1m. the maximum possible ideal gain of the antenna at a wavelength 3.14cm is
* 20 dB
* 30 dB
* 40 dB
* 50 dB

2. The frequency deviation produced in a VHF carrier by a signal of 100Hz is 50KHz. The frequency modulation is
*100 radians
*250 radians
*500 radians
*750 radians

Application based theoretical or numerical problem:

1. Which one of the pulses has the same form in time domain as well as in frequency domain
*Rectangular
*Exponential
*Triangular
*Gaussian

2. Good voice reproduction via PCM requires 128 quantization levels. If the BW of voice channel is 4KHz then data rate is
*256 Kbps
*128 Kbps
*56 Kbps
*28 Kbps

3. Match the following:
1. List 1 List2
A. Thyristor 1. Second break down
B. MOSFET 2. Large on-state drop
C. IGBT 3. Small on state drop
D. BJT 4. Slow device

Codes:
(a) A-4, B-3, C-2, D-1 (b) A-1, B-2, C-3, D-4
(c) A-4, B-2, C-3, D-1 (d) A-1, B-3, C-2, D-4

4. List 1 List2

A. Free and forced response 1. Discrete time systems
B. Z transform 2. Dirichlet conditions
C. Probability theory 3. Non-homogenous differential equation
d. Fourier series 4. Random process
Codes:

(a) A-1, B-3, C-2, D-4 (b) A-3, B-1, C-2, D-4
(c) A-1, B-3, C-4, D-2 (d) A-3, B-1, C-4, D-2

Assertion and reasoning type:

The following item consists of two statements labeled as Assertion A and the other as Reason R.
Use the following codes:
(a) Both A&R are individually true and R is the correct explanation of A
(b) Both A & R are individually true and R is not the correct explanation of A
(c) A is true and R is false
(d) A is false and R is true

5. Every materials has a different value of energy band gap except metals which have no band gap
R The energy band gap is decided by the equilibrium lattice constant, which is different in different materials.

6. AOp-amp are commonly used in instrumentation Op-amps do not load the circuit due to their very high input impedance

DRDO Placement Paper (Technical)

DRDO Placement Paper (Technical)

1. if 100ns is Memory Access Time & 125 microsecond is 1frame period. The no. of line that can be supported in a Time Division Switch is
a)125 Lines
b)625 Lines
c)525 Lines
d)465 Lines

2.The no. of edges 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 in a dinner table such that every member has different neighbor. This arrangement will last for how many days.

4. 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

5. 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 retrieved from controller before next byte arrives are lost. Then the maximum safe polling interval is
a) 12
b) 12.33
c) 12.67
d) 32

6. A hard disk has a rotation speed of 4500RPM. then the latency time is
a) .4
b) .6
c) .7
d) .9

7.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

8. The minimum number of comparisons required to find the second smallest element in a 1000 element array is
a) 1008
b) 1010
c) 1999
d) 2000

9. The internal path length of a Binary Tree with 10nodes is 25. The external path length is
a) 25
b) 35
c) 40
d) 45

10. Average No. of Comparisons required to sort 3 elements is
a) 2
b) 2.33
c) 2.67
d) 3

11. 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

12. What is Interface Control Information?

13. The minimum no. of Multiplications needed to compute x^768 is
a) 9
b) 10
c) 425
d) 767

14. Find values for a,b,c,d
c 1 1 1

0 a 1 b

____

1 0 d 0

(967)basex = 321base9

15. The area of red planet where the Mars Rover Landed?

16. In Which Day world Telecom Day Celebrated?

17. Laser is used for what?
a) Treatment of Cancer
b) Treatment of Eyes
c) Treatment of Heart
d) Treatment of Kidney

18. Which country is not a Member of SAARC
a) Bangladesh
b) Myanmar
c) Maldives
d) Nepal

19. The New Biotechnology Software intorduced by TCS is?

20. What is Wi Fi?

21. Which is the fastest Cruise Missile

Posted by SREE MEDIA COMMINICATIONS at 1:58 AM 0 comments
Email This BlogThis! Share to Twitter Share to Facebook Share to Google Buzz
Labels: DRDO

Reactions:

DRDO Model Paper

DRDO Model Paper

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?
Posted by SREE MEDIA COMMINICATIONS at 1:57 AM 0 comments
Email This BlogThis! Share to Twitter Share to Facebook Share to Google Buzz
Labels: DRDO

Reactions:

Friday, June 18, 2010

DRDO EXAM PAPERS

DRDO Sample Questions

It contained 2 parts PART 1 - pure technical 100 ques. and 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?

Model for ECE:

Direct Theory question: 1. A triangular-square wave generator uses

* A sine wave oscillator and a comparator
* An integrator and a comparator
* A diffrentiator and comparator
* A sine wave oscillator and a clipper

2. An amplifier has two identical cascaded stages. Each stage has a BW of 20KHz. The overall BW shall be

* 10KHz
* 12.9KHz
* 20KHz
* 28.3HHz

Direct numerical problem:

18. 1. A parabolic dish antenna has a diameter of 1m. the maximum possible ideal gain of the antenna at a wavelength 3.14cm is
    * 20 dB
    * 30 dB
    * 40 dB
    * 50 dB
19. 2. The frequency deviation produced in a VHF carrier by a signal of 100Hz is 50KHz. The frequency modulation is
    100 radians
    250 radians
    500 radians
    750 radians

Application based theoretical or numerical problem:

1. Which one of the pulses has the same form in time domain as well as in frequency domain
   Rectangular
   Exponenetial
   Triangular
   Gaussian
2. Good voice reproduction via PCM requires 128 quantisation levels. If the BW of voice channel is 4KHz then data rate is
   256 Kbps
   128 Kbps
   56 Kbps
   28 Kbps

3. Match the following:
   1. List 1 List2
   A. Thyristor 1. Second break down
   B. MOSFET 2. Large on-state drop
   C. IGBT 3. Small on state drop
   D. BJT 4. Slow device

   Codes:

   (a) A-4, B-3, C-2, D-1 (b) A-1, B-2, C-3, D-4

   (c) A-4, B-2, C-3, D-1 (d) A-1, B-3, C-2, D-4

4. List 1 List2

   A. Free and forced response 1. Discrete time systems
   B. Z transform 2. Dirichlet conditions
   C. Probability theory 3. Non-homogenous differential equation
   d. Fourier series 4. Random process

   Codes:

   (a) A-1, B-3, C-2, D-4 (b) A-3, B-1, C-2, D-4

   (c) A-1, B-3, C-4, D-2 (d) A-3, B-1, C-4, D-2

Assertion and reasoning type:

The following item consists of two statements labeled as Assertion A and the other as Reason R. Use the following codes:

(a) Both A&R are individually true and R is the correct explanation of A

(b) Both A & R are individually true and R is not the correct explanation of A

(c) A is true and R is false

(d) A is false and R is true

5. AEvery materials has a different value of energy band gap except metals which have no band gap
   R The energy band gap is decided by the equilibrium lattice constant, which is different in different materials.
6. AOp-amp are commonly used in instrumentation
   R Op-amps do not load the circuit due to their very high input impedance

Problem based on circuits and graphs:

Some examples:

For circuits: HW rectifier, voltmeter, RC or RLC or RL transients, feedback systems, clipper, clamper, transistor biasing,555 circits, logic gates, counters, bridges and wattmeters.

Graphs: Frequency response H(s),open loop gain from root loci, Nyquist plot, transfer functions etc

DRDO SET exam conducted in Sept 2003. Still the questions is not yet complete.

General Pattern

-There are 2 sections:A and B

-'A' section consists of technical questions relevant to your field[100 questions]

-'B' section consists of a mix of Analytical,Quantitative and General Knowledge questions[50 questions]

4 marks for correct answers and -1 for wrong answers

Section 'A' questions

1) Banker's algorithm is used for:Deadlock Avoidance
2) A LOT of questions were based on generating strings from a given grammar.
3) A circle(dot) shown in the PCB is:Vcc/Grnd/Pin 1/Pin 14
4) Program Segment Prefix in MS-DOS 5.0 is:
5) Some IP addresses were given and the question was to select the private addess from it(?)
6) 10Base2 and 10Base5 wires refers to:
7) A question on sliding-window protocol
8) Which of the following require a driver?:disk/cache/ram/cpu
9) A LOT of mathematical questions which were asked from calculus,trigonometry...

Section 'B' questions

1) Coldest planet:Pluto
2) INS Shivali is the first:
3) Which one of the following was NOT indegineously developed?:Prithvi/Akash/Agni/...
4) Full form of SARS
5) Anthrax is a :Virus/Bacteria/.../...
6) Dakshina Gangothri is:Ganga's origin/Indian camp @ antartica/.../...
7) Which of the following is a chemical weapon:Mustard Gas/Marsh Gas/.../...
8) A question based on Coding and Decoding
9) Another question similar to above
10) Question on series completion

11) Another series completion question

12) Where is Institute of Forensic Science?:Hyderabad

13) A G.K question based on X and Y chromosomes in males and females

DRDO SAMPLE INTERVIEW QUESTIONS

1) Coldest planet:Pluto

2) INS Shivali is the first:

3) Which one of the following was NOT indegineously developed?:Prithvi/Akash/Agni

4) Full form of SARS

5) Anthrax is a :Virus/Bacteria/.../...

6) Dakshina Gangothri is:Ganga's origin/Indian camp @ antartica/.../...

7) Which of the following is a chemical weapon:Mustard Gas/Marsh Gas/.../...

8) A question based on Coding and Decoding

9) Another question similar to above

10) Question on series completion

11) Another series completion question

12) Where is Institute of Forensic Science?:Hyderabad

13) A G.K question based on X and Y chromosomes in males and females

Sample technical questions asked in test last year in CSE :

1) Banker's algorithm is used for: Deadlock Avoidance

2) A LOT of questions were based on generating strings from a given grammar.

3) A circle(dot) shown in the PCB is:Vcc/Grnd/Pin 1/Pin 14

4) Program Segment Prefix in MS-DOS 5.0 is:

5) Some IP addresses were given and the question was to select the private

addess from it(?)

6) 10Base2 and 10Base5 wires refers to:

7) A question on sliding-window protocol

8) Which of the following require a driver?:disk/cache/ram/cpu

9) A LOT of mathematical questions which were asked from calculus,trigonometry...

The questions asked in ECE were mainly from Control Systems, Communications

EMT and microprocessor

Make sure that u know the fundas of microprocessors useful in interview also: see if u know these questions

1. Which type of architecture 8085 has?
2. How many memory locations can be addressed by a microprocessor with 14 address lines?
3. 8085 is how many bit microprocessor?
4. Why is data bus bi-directional?
5. What is the function of accumulator?
6. What is flag, bus?
7. What are tri-state devices and why they are essential in a bus oriented system?
8. Why are program counter and stack pointer 16-bit registers?
9. What does it mean by embedded system?
10. What are the different addressing modes in 8085?
11.What is the difference between MOV and MVI?
12. What are the functions of RIM, SIM, IN?
13. What is the immediate addressing mode?
14. What are the different flags in 8085?
15. What happens during DMA transfer?
16. What do you mean by wait state? What is its need?

17. What is PSW?
18. What is ALE? Explain the functions of ALE in 8085.
19. What is a program counter? What is its use?
20. What is an interrupt?
21. Which line will be activated when an output device require attention from CPU?

Then comes the interview questions asked in ECE interview were fundamental.Qustions asked in my interview were:
Director

1. Which college and university are you coming from?
2. Did you appear for GATE? Why are you not interested in higher studies?
3. Did you appear for IES?
4. Did you appear for any other board interview of public sector?
5. The subjects you have learned in college can be divided into three- basic electronics, communi-cation and digital logic. Tell me any five subjects you like.

(I told radar and navigational aids, electronic warfare, satellite communication, biomedical instrumentation, fuzzy electronics and basic digital electronics as my subjects)

Board member1 (QUESTION LEVEL- MODERATE)

1. Write the truth table for full adder and implement it in NAND gate only.
2. What's the difference between looping 0s and 1s in K map?
3. Difference between microprocessor and micro controller
4. Microprocessors you are familiar with
5. How will you send and receive data to a micro-processor? (One method is I/O mapped I/O which is the other one?)

6. Radar range equation?
7. Does the radar range depend upon the frequency of the signal transmitted?
8. What is Doppler shift? What is its importance?

BOARD MEMBER -2 QUESTION LEVEL- TOUGH)

1. I will make two fuzzy statements. Pencil is long. Table is long. What is the term long signify?
2. What is a membership function?
3. What are the design criteria for very low frequency amplifier?
4. Can you measure distance with the help of CW radar? If so how?
5. How will you design a stable oscillator? (Not with crystal oscillator because temperature affects it)
6. You have designed an amplifier. After few days it is found that its gain have changed. What might be the reason?

BOARD MEMBER-3 (QUESTION LEVEL- MODERATE)

1. A plane is moving in a circular path around the transmitter of the radar. Will there be Doppler shift detected in the radar?
2. State Keplers laws
3. Why there is more geo synchronous satellite?
4. The angular difference between two satellites is 2 degree. What is the maximum number of satellites needed to cover the whole earth?
5. What is the minimum number of satellites needed to cover the whole earth?

BOARD MEMBER-4 QUESTION LEVEL- MODERATE)

1. Which is the law of conservation involved in the second of Keplers?

2. Why do you explain elliptical orbit while stating Kepler's law? Why not circular orbit?
3. What are the advantages of optical communication?
4. What are the invasive and non-invasive methods of instrumentation?

For CS guys they started with this question: What is a key board? Where u will connec? What will happen if you press the keys?..
For maths guys they asked some questions on series.. I don't know muchSome guys were selected just by describing the final year project.

1. How can you design a phase detector using a XOR gate?
2. Questions abt differentiator and integrator. What will happen if we increase/decrease the values of R/C?
3. how will a low/high pass filters behave to different signals –ramp, pulse etc
4. questions on flip flops
5. Johnson counter
6. Questions on microprocessors- what is SIM?
7. Abt your project. What will happen when this/that happens to your project?
8. Radar, antenna and satellite communication.
9. Which is the first/latest communication satellite?
10. What is apogee /perigee?

1.

Posted by SREE MEDIA COMMINICATIONS at 3:49 AM 0 comments
Email This BlogThis! Share to Twitter Share to Facebook Share to Google Buzz
Labels: DRDO

Reactions:

Monday, June 14, 2010

DRDO SET ECE question paper 2008

DRDO SET ECE question paper 2008

Technical Part

(N.B: Based on memory so some errors might have crept in, some images might not be available)

1.The current I in the given network.
a) 1A b) 3A c) 5A d) 7A

2.For the Delta- Wye transformation in given figure, the value of the resistance R is.
a) 1/3 ohms b) 2/3 ohms c) 3/2 ohms d) 3 ohms

3.In the given network, the Thevenin's equivalent as seen by the load resistance Rl is
a) V=10 V, R= 2ohms b) V=10V, R=3 ohms c) V=15V, R= 2ohms d) V=15V, R=3 ohms

4.The current I in a series R-L circuit with R=10 ohms and L=20mH is given by i=2sin500t A. If v is the voltage across the R-L combination then i
a) lags v by 45 degree b) is in-phase with v c) leads v by 45 d) lags v by 90

5.In thr given network, the mesh current I and the input impedance seen by the 50 V source, respectively, are
a) 125/13 A and 11/8 ohms b) 150/13 A and 13/8 ohms c) 150/13 A and 11/8 ohms d) 125/13 A and 13/8 ohms

6.A voltage source having a source impedance Z = R + jX can deliver maximum Average power to a load impedance Z, when
a) Z = R + jX b) Z = R c) Z = jX d) Z = R –jX

7.In the given circuit, the switch S is closed at t=0. Assuming that there is no initial Charge in the capacitor, the current i(t) for t>0 is
a) V/R e^ (-2t/RC) b) V/R e^ (-t/RC) c) V/2R e^ (-2t/RC) d) V/2R e^ (-t/RC)

8.For the circuit in given figure, if e(t) is a ramp signal, the steady state value of the Output voltage v(t) is
a) 0 b) LC c) R/L d) RC

9.For the series RLC circuit in given figure, if w=1000 rad/sec, then the current I (in Amperes) is
a) 2 ∟-15 b) 2 ∟15 c) √2∟-15 d) √2∟15

10.The Y-parameter matrix (mA/V) of the two-port given network is
a) [2 -1 -1 2] b) [2 1 -1 2] c) [1 -2 -1 2] d) [2 1 1 2]

11.The maximum number of trees of the given graph is
a) 16 b) 25 c) 100 d) 125

12.Given figure shows a graph and one of its trees. Corresponding to the tree, the group of branches that CAN NOT constitute a fundamental cut set is
a) 1,2,3 b) 1,4,6,8,3 c) 5,6,8,3 d) 4,6,7,3

13.The Y-parameter matrix of a network is given by Y=[1 1 -1 1] A/V. The Z11 parameter of the same network is
a) ½ ohms b) 1/√2 ohms c) 1 ohms d) 2 ohms

14.For the given circuit, the switch was kept closed for a long time before opening it at t=0. The voltage v(0+) is
a) -10 V b) -1 V c) 0V d) 10 V

15.The input impedance of a series RLC circuit operating at frequency W=√2w, w being the resonant frequency, is
a) R-j(wL/√2) ohms b) R+j(wL/√2) ohms c) R-j√2wL ohms d) R-j√2wL ohms

16.The threshold voltage V is negative for
a) an n-channel enhancement MOSFET b) an n-channel depletion MOSFET c) an p-channel depletion MOSFET d) an p-channel JFET

17.At a given temperature, a semiconductor with intrinsic carrier concentration ni= 10 ^ 16 / m^3 is doped with a donor dopant of concentration Nd = 10 ^ 26 /m^3. Temperature remaining the same, the hole concentration in the doped semiconductor is
a) 10 ^ 26 /m^3 b) 10 ^ 16 /m^3 c) 10 ^ 14 /m^3 d) 10 ^ 6 /m^3}

18.At room temperature, the diffusion and drift constants for holes in a P-type semiconductor were measured to be Dp = 10 cm^2/s and µp = 1200 cm^2/V-s, respectively. If the diffusion constant of electrons in an N-type semiconductor at the same temperature is Dn = 20 cm^2/s, the drift constant for electrons in it is
a) µn = 2400 cm^2/V-s b) µn = 1200 cm^2/V-s c) µn = 1000 cm^2/V-s d) µn = 600 cm^2/V-s

19.A common LED is made up of
a) intrinsic semiconductor b) direct semiconductor c) degenerate semiconductor d) indirect semiconductor

20.When operating as a voltage regulator, the breakdown in a Zener diode occurs due to the
a) tunneling effect b) avalanche breakdown c) impact ionization d) excess heating of the junction.

21.If the common base DC current gain of a BJT is 0.98, its common emitter DC current gain is
a) 51 b) 49 c) 1 d) 0.02

22.Negative resistance characteristics is exhibited by a
a) Zener diode b) Schottky diode c) photo diode d) Tunnel diode

23.Let En and Ep, respectively, represent the effective Fermi levels for electrons and holes during current conduction in a semiconductor. For lasing to occur in a P-N junction of band-gap energy 1.2 eV, (En - Ep) should be
a) greater than 1.2eV b) less than 1.2eV c) equal to 1.1eV d) equal to 0.7eV

24.In a P-well fabrication process, the substrate is
a) N-type semiconductor and is used to build P-channel MOSFET
b) P-type semiconductor and is used to build P-channel MOSFET
c) N-type semiconductor and is used to build N-channel MOSFET
d) P-type semiconductor and is used to build N-channel MOSFET

25.In a MOS capacitor with n-type silicon substrate, the Fermi potential ¢ = -0.41 V and the flat-band voltage Vfb = 0V. The value of the threshold voltage Vt is
a) -0.82 V b) -0.41 V c) 0.41 V d) 0.82

Refer given figure for question 26 and 27. Assume D1 and D2 to be ideal diodes.
26.Which one of the following statements is true?
a) Both D1 and D2 are ON.
b) Both D1 and D2 are OFF.
c) D1 is ON and D2 is OFF.
d) D2 is ON and D1 is OFF.

27.Values of Vo and I, respectively, are
a) 2V and 1.1 mA b) 0V and 0 mA c) -2V and 0.7 mA d) 4V and 1.3 mA

28.In a BJT CASCODE pair, a
a) common emitter follows a common base
b) common base follows a common collector
c) common collector follows a common base
d) common base follows a common emitter

29.Inside a 741 op-amp, the last functional block is a
a) differential amplifier b) level shifter c) class-A power amplifier d) class-AB power amplifier

30.For the MOSFET in the given circuit, the threshold voltage Vt = 0.5V, the process parameter KP = 150 µA/V^2 and W/L = 10. The values of Vd and Id, respectively, are
a) Vd = 4.5 V and Id = 1 mA
b) Vd = 4.5 V and Id = 0.5 mA
c) Vd = 4.8 V and Id = 0.4 mA
d) Vd = 6 V and Id = 0 mA

31.A negative feedback is applied to an amplifier with the feedback voltage proportional to the output current. This feedback increases the
a) input impedance of the amplifier b) output impedance of the amplifier c) distortion in the amplifier d) gain of the amplifier

32.The early effect in a BJT is modeled by the small signal parameter
a) r0 b) rΠ c) gm d) β

33.For a given filter order, which one of the following type of filters has the least amount of ripple both in pass-band and stop-band?
a) Chebyshev type I b) Bessel c) Chebyshev type II d) Elliptic

34.For a practical feedback circuit to have sustained oscillation, the most appropriate value of the loop gain T is
a) 1 b) -1 c) -1.02 d) 1.02

35.Assume the op-amps in given figure to be ideal. If the input signal vi is a sinusoid of 2V peak-to-peak and with zero DC component, the output signal vo is a
a) sine wave b) square wave c) pulse train d) triangular wave

36.In a common source amplifier, the mid-band voltage gain is 40 dB and the upper cutoff frequency is 150kHz. Assuming single pole approximation for the amplifier the unity gain frequency fT is
a) 6 MHz b) 15 MHz c) 150 MHz d) 1.5 GHz

37.An op-amp is ideal except for finite gain and CMRR. Given the open loop differential gain Ad=2000, CMRR = 1000, the input to the noninverting terminal is 5.002 V and the input to the inverting terminal is 4.999 V, the output voltage of the op-amp is
a) 14 V b) 24 V c) -6 V c) -8 V

38.The op-amp in the circuit in given figure has a non-zero DC offset. The steady state value of the output voltage Vo is
a) –RC dvs(t)/ dt b) – (1/RC)|vs(t)dt c) –V d) +V

39.For the circuit in given figure, if the value of the capacitor C is doubled, the duty-cycle of the output waveform Vo
a) increases by a factor of 2 b) increases by a factor of 1.44 c) remains constant d) decreases by a factor of 1.44

40.Assume the op-amp in the given circuit to be ideal. The value of the output voltage Vo is
a) 3.2 Vi b) 4 Vi c) 9 Vi d) 10 Vi

41.The complement of the Boolean expression $F = (X + \overline{Y} + Z)(\overline{X} + \overline{Z})(X + Y)$ is
a) $XYZ+X\overline{Z}+\overline{Y}Z$ b) $\overline{X}Y\overline{Z}+XZ+\overline{X}\,\overline{Y}$ c) $\overline{X}Y\overline{Z}+XZ+YZ$ d) $XYZ+\overline{X}\,\overline{Y}$

42.The Boolean function F(A,B,C,D) = Σ(0,6,8,13,14) with don't care conditions d(A,B,C,D) = Σ(2,4,10) can be simplified to
a) F = B¯D¯+CD¯+ABC¯ b) F = B¯D¯+CD¯+ABC¯D c) F = AB¯D¯+CD¯+ABC¯ d) F = B¯D¯+CD¯+ABCD

43.The Boolean function F = A¯D¯+B¯D can be realized by one of the following figures

44. For the multiplexer in given figure, the Boolean expression for the output Y is
a) A¯B¯+B¯C¯+AC b) AB¯+B¯C¯+AC¯ c) AB¯+B¯C+AC d) A¯B¯+B¯C+A¯C

45. Which one of the following is TRUE?
a) Both latch and flip-flop are edge triggered.
b) A latch is level triggered and a flip-flop is edge triggered.
c) A latch is edge triggered and a flip-flop is level triggered.
d) Both latch and flip-flop are level triggered.

46. In a schottky TTL gate, the Schottky diode
e) increases the propagation delay
f) increases the power consumption
g) prevents saturation of the output transistor
h) keeps the transistor in cutoff region

47. For which one of the following ultraviolet light is used to erase the stored contents
a) PROM b) EPROM c) EEPROM d) PLA

48. Which one of the following is NOT a synchronous counter
a) Johnson counter b) Ring counter c) Ripple counter d) Up-down counter

49. In 8085 microprocessor, the accumulator is a
a) 4 bit register b) 8 bit register c) 16 bit register d) 32 bit register

50. In the register indirect addressing mode of 8085 microprocessor, data is stored
a) at the address contained in the register pair
b) in the register pair
c) in the accumulator
d) in a fixed location of the memory

51. The output w[n] of the system shown in given figure is
a) x[n] b) x[n-1] c) x[n] – x[n-1] d) 0.5(x[n-1] + x[n])

52. Which one of the following is a periodic signal
a) x(t) = 2 e^j(t+(π/4)) b) x[n] = u[n] + u[-n] c) x[n] = Σ{∂[n-4k]-∂[n-1-4k]} where k = -∞to ∞ d) x(t) = e^ (-1+j)t

53. If the input-output relation of a system is $y(t) = \int x(t)\, dt$ where $t = -\infty$ to $2t$
a) linear, time-invariant and unstable
b) linear, non-causal and unstable
c) linear, causal and time invariant
d) non-causal, time invariant and unstable

54. Which one of the can be the magnitude of the transfer function | H(jw) | of a causal system

55. Consider the function H(jw) = H1(w) + jH2(w), where H1(w) is an odd function and H2(w) is an even function. The inverse Fourier transform of H(jw) is
a) a real and odd function
b) a complex function
c) a purely imaginary function
d) a purely imaginary and odd function

56. The laplace transform of given signal is
a) –A((1-e^cs)/s) b) A((1-e^cs)/s) c) A((1-e^-cs)/s) d) –A((1-e^-cs)/s)

57. If X(z) is the z-transform of x[n] = (1/2)^ |n|, the ROC of X(z) is
a) |z| > 2 b) |z| < 2 c) 0.5<|z|<2 d) the entire z-plane

58. In a linear phase system, τg the group delay and τp the phase delay are
a) constant and equal to each other b) τg is a constant and τp is proportional to w c) a constant and τg is proportional to w d) τg is proportional to w and τp is proportional to w

59. A signal m(t), band-limited to a maximum frequency of 20 kHz is sampled at a frequency fs kHz to generate s(t). An ideal low pass filter having cut-off frequency 37 kHz is used to reconstruct m(t) from s(t). The maximum value of fs required to reconstruct m(t) without distortion is
a) 20 kHz b) 40kHz c) 57 kHz d) 77 kHz

60. If the signal x(t) shown in given figure is fed to an LTI system having impulse response h(t) as shown in given figure, the value of the DC component present in the output y(t) is
a) 1 b) 2 c) 3 d) 4

61. The characteristic equation of an LTI system is given as s^3 + Ks^2 + 5s + 10. When the system is marginally stable, the value of K and the sustained oscillation frequency w, respectively, are
a) 2 and 5 b) 0.5 and √5 c) 0.5 and 5 d) 2 and √5

62. The time required for the response of a linear time-variant system to reach half the final value for the first time is
a) delay time b) peak time c) rise time d) decay time

63. The signal flow graph of the given network is

64. Let c(t) be the unit step response of a system with transfer function K(s+a)/(s+K). If c(0+)=2 and c(∞)=10, then the values of a and K, respectively, are
a) 2 and 10 b) -2 and 10 c) 10 and 2 d) 2 and -10

65. The loop transfer function of an LTI system is G(s)H(s)= K(s+1)(s+5) / s(s+2)(s+3). For K>0, the point on the real axis that DOES NOT belong to the root locus of the system is
a) -0.5 b) -2.5 c) -3.5 d) -5.5

66. The state space equation of the circuit shown in given figure for x1=v0, x2=I is

67. The open loop gain of a unity feedback system is G(s)=wn^2 / s(s+2wn). The unit step response c(t) of the system is

68. If A = [2 0 0 2], then e^At is given by
a) [e^2t 0 0 e^2t] b) [e^-2t 0 0 e^-2t] c) [e^t/2 0 0 e^t/2] d) [e^-t/2 0 0 e^-t/2]
69. The angles of the asymptotes of the root loci of the equation s^3 + 5s^2 + (K+2)s + K = 0, for 0<=K<∞, are
a) 0 and 270 b) 0 and 180 c) 90 and 270 d) 90 and 180

70. The bode plot corresponding to a proportional derivative controller is the one shown in given figure

71. In frequency modulation, the instantaneous
a) amplitude of the carrier signal is varied with the instantaneous amplitude of the message signal
b) amplitude of the carrier signal is varied with the instantaneous frequency of the message signal
c) frequency of the carrier signal is varied with the instantaneous amplitude of the message signal
d) frequency of the carrier signal is varied with the instantaneous frequency of the message signal

72. If X is a zero mean Gaussian random variable, then P{X<=0} is
a) 0 b) 0.25 c) 0.5 d) 1

73. If a single-tone amplitude modulated signal at a modulation depth of 100% transmits a total power of 15W, the power in the carrier component is
a) 5W b) 10W c) 12W d) 15W

74. In a superheterodyne receiver, rejection of the image signal can be achieved by using a
a) higher local oscillatorn frequency b) crystal oscillator c) narrow band IF filter d)

narrow band filter at RF stage

75. The number of bbits per sample of a PCM system depends upon the
a) sampler type b) quantizer type c) number of levels of the quantizer d) sampling rate

76. Which one of the following is used for the detection of AM-DSB-SC signal
a) Ratio detector b) Foster-Seeley discriminator c) Product demodulator d) Balanced-slpoe detector

77. Which one of the following signal pairs can represent a BPSK signal
a) A cos2πfct, A sinπfct
b) A cos2πfct, - A sinπfct
c) - A cos2πfct, A sinπfct
d) A sin2πfct, A cosπfct

78. Which one of the following can be used for the detection of the noncoherent BPSK signal
a) matched filter b) phase-locked loop c) envelope detector
d) product demodulator

79. Bits of duration Tb are to be transmitted using a BPSK modulation with a carrier of frequency Fc Hz. The power spectral density of the transmitted signal has the first null at the normalized frequency
a) |F – Fc|Tb = 0 b) |F – Fc|Tb = 1 c) |F – Fc|Tb = 2 d) |F – Fc|Tb = 4

80. The probability of bit error of a BPSK modulation scheme, with transmitted signal energy per bit Eb, in an additive white Gaussian noise channel having one-sided power spectral density N0, is
a) (1/2) erfc(Eb/2N0) b) (1/2) erfc√(Eb/2N0) c) (1/2) erfc(Eb/N0) d) (1/2) erfc√(Eb/N0)

81. For a given transmitted pulse p(t), 0<=t<=T, the impulse response of a filter matched to the received signal is
a) –p(t-T), 0<=t<=T b) –p(T-t), 0<=t<=T c) p(t-T), 0<=t<=T d) p(T-t), 0<=t<=T

82. The multiple access communication scheme in which each user is allocated the full available channel spectrum for a specified duration of time is known as
a) CDMA b) FDMA c) TDMA d) MC-CDMA

83. GSM system uses TDMA with
a) 32 users per channel b) 16 users per channel c) 8 users per channel d) 4 users per channel

84. If Rx(τ) is the auto-correlation function of a zero-mean wide-sense stationary random process X, then which one of the following is NOT true?

a) $R_x(\tau) = R_x(-\tau)$ b) $R_x(\tau) = -R_x(-\tau)$ c) $\sigma_x^2 = R_x(0)$ d) $|R_x(\tau)| \le R_x(0)$

85. If E denotes the expectation operator, then $E[X-EX]^3$ of a random variable X is
a) $EX^3 - E^3X$ b) $EX^3 + 2E^3X - 3EX\,Ex^2$ c) $3EX^3 - E^3X$ d) $2EX^3 + E^3X - 3EX\,EX^2$

86. A discrete memoryless source produces symbols m1,m2,m3 and m4 with probabilities 1/2, 1/4 , 1/8 and 1/8, respectively. The entropy of the source is
a) ¼ b) 1 c) 7/4 d) 2

87. A channel has a signal-to-noise ratio of 63 and bandwidth of 1200 Hz. The maximum data rate that can be sent through the channel with arbitrary low probability of error is
a) 600 bps b) 1200 bps c) 4800 bps d) 7200 bps

88. For the vectors A = X ax + Y ay and B = Z az, del . (A X B) is
a) 0 b) 1 c) XZ d) YZ

89. Which one of the following relations represents Strokes' theorem (symbols have their usual meaning)?
a) ∫s del X A.ds = 0 b) ∫L A.dl = ∫s del X A.ds c) ∫s A X dS = -∫v (del X A)dv d) ∫v del.Adv = ∫s A.ds

90. Which one of the following relations is not correct (symbols have their usual meaning)?
a) del X E = - ∂B/∂t b) del X H = J + ∂E/∂t c) del.D = ρv d) del.B = 0

91. The electric field component of a uniform plane wave propagating in a lossless magnetic dielectric medium is given by $E(t,z)=a_x 5\cos(10^9 t - 20/3\, z)$V/m. If η_0 represents the intrinsic impedance of the free space, the corresponding magnetic field component is given by
a) $H(t,z)= a_y\, 5/2\, \eta_0 \cos(10^9t - 20/3\, z)$A/m
b) $H(t,z)= a_y\, 10/\, \eta_0 \cos(10^9t - 20/3\, z)$A/m
c) $H(t,z)= a_z\, 5/2\, \eta_0 \cos(10^9t - 20/3\, z)$A/m
d) $H(t,z)= a_z\, 10/\, \eta_0 \cos(10^9t - 20/3\, z)$A/m

92. The skin depth of a non-magnetic conducting material at 100 MHz is 0.15 mm. The distance which a plane wave of frequency 10 GHz travels in this material before its amplitude reduces by a factor of e^{-1} is
a) 0.0015 mm b) 0.015 mm c) 0.15 mm d) 1.5 mm

93. A lossless transmission line has a characteristic impedance of 100 ohms and an inductance per unit length of 1 μH/m. If the line is operated at 1 GHz, the propagation constant β is
a) 2π rad/m b) 20π/3 rad/m c) 20π rad/m d) $2\pi \times 10^5$ rad/m

94. When a load resistance Rl is connected to a lossless transmission line of

characteristic impedance 75 ohms, it results in a VSWR of 2. The load resistance is
a) 100 ohms b) 75/√2 ohms c) 120 ohms d) 150 ohms

95. A two-port network characterized by the S-parameter matrix, [S] = [0.3 L0 0.9 L90

0.9 L90 0.2 L0]

Is

a) both reciprocal and lossless b) reciprocal, but not lossless c) lossless, but not reciprocal d) neither reciprocal nor lossless

96. A lossless air filled rectangular waveguide has internal dimensions of a cm * b cm. If a=2b and the cutoff frequency of the TE02 mode is 12 GHz, the cutoff frequency of the dominant mode is
a) 1 GHz b) 3 GHz c) 6 GHz d) 9 GHz

97. A Hertzian dipole antenna is placed at the origin of a coordinate system and it is oriented along z-axis. In which one of the following planes the radiation pattern of the antenna has a circular shape?
a) x=0 b) y=0 c) z=0 d) ø=45

98. Which one of the following statements is not true?
a) Antenna losses are taken into account in calculating its power gain
b) For an antenna which does not dissipate any power, the directive gain and the power gain are equal
c) Directivity of an antenna is the maximum value of its directive gain
d) The directive gain of a Hertzian dipole is same in all direction

99. The directivity of a half dipole antenna is
a) 1.0 b) 1.5 c) 1.64 d) 2

100. Which one of the following is not true for a step index optical fibre?
a) It can support multiple modes
b) HE11 mode is its lowest order mode
c) The refractive index of the cladding is higher than that of the core
d) At a given wavelength, single mode operation is possible by proper choice of core diameter, core and cladding refractive indices.

GENERAL ABILITY TEST

[Sample question]
(Section B)
101. Sarnath is situated in the state of
a) MP b) Bihar c) Punjab d) UP

102. Green house effect is due to the increase of atmospheric
a) CO_2 level b) SO_2 level c) CO level d) N_2 level

103. In the month of July, it is winter in
a) New York b) Beijing c) Sydney d) London

104. The chairman of the Planning commission of India is
a) The prime minister b) The vice-president c) The union finance minister d) The union commerce minister

105. The satellite launch vehicle that placed a number of satellites ito orbit in May 2008 is
a) PSLV-C7 b) PSLV-C8 c) PSLV-C9 d) PSLV-C10

106.DRDO was formed in
a) 1947 b) 1950 c) 1954 d) 1958

107. SAMYUKTA is developed for the use of
a) Navy b) Army c) Air force d) RAC

108. DARL 202 is a variety of
a) pea b) garlic c) capsicum d) tomato

109. TRISHUL is
a) a surface to surface battlefield missile
b) a quick reaction surface to air missile
c) an intermediate range ballistic missile
d) a supersonic cruise missile

110. HUMSA is a
a) sonar b) tank c) mine d) night vision device

111. The value of 1+2i / 3-4i + 2-I / 5i , where i^2 is -1, is
a) -5/2 b) 5/2 c) 2/5 d) -2/5

112. The particular solution of the differential equation $d^2y/dx^2 + 2\, dy/dx + 5y = 0$ satisfying the conditions y(0)=0 and y'(0)=1 is
a) $y=1/2\, e^{-x} \cos 2x$ b) $y=1/2\, e^{-x} \sin 4x$ c) $y=1/2\, e^{-x} \sin 2x$ d) $y=1/2\, e^{-x} \cos 4x$

113. For the vectors A=3i-2j+k and B=2i-k, the value of (A*B).A is
a) 0 b) 1 c) 2 d) 3

114. The orthogonal trajectory of the family of curves $x^2-y^2 = a$ (where a is a constant) and passing through the point (1,1) is
a) y=-1/x b) y=1/x c) y=-x d) y=x
115. The value of the line integral $\int y^2\, dx + 2xy\, dy$ over the curve x=accost, y=asint is

a) 0 b) 1 c) 2 d) 4

116. The n-th partial sum of the infinite series 1/1*2 + 1/2*3 + 1/3*4+......1/n*(n+1)
....
a) 1/n+1 b) n+2/n+1 c) n/n+1 d) n-1/n+1

117. The complex-valued function f(z)=e^z is analytic for
a) no z b) all z c) real z only d) imaginary z only
118. The inverse of the matrix [cos A sin A
-sin A cos A] is

a) [-cos A Sin A b) [cos A sin A} c) [cos A -sin A d) [cos A -sin A
sin A cos A] sin A -cos A] -sin A cos A] sin A cos A]

119. Consider the function f(x) defined as
F(x) = 3x-1, x<0
0, x=0
2x+5, x>0
In the following table, List I shows 4 expressions for limits of f(x) and List II indicates the values of the limits
List I List II
P.Lim x->2 f(x) 1. -1
Q.Lim x->0+ f(x) 2. 9
R.Lim x->0- f(x) 3. -10
S.Lim x->-3 f(x) 4. 5
The correct matches are
a) P-2,Q-4,R-1,S-3 B) P-2,Q-4,R-3,S-1 C) P-4,Q-2,R-1,S-3 D) P-4,Q-2,R-3,S-1

120. Two events A and B with probability 0.5 and 0.7, respectively, have joint probability of 0.4. The probability that neither A nor B happens is
a) 0.2 b) 0.4 c) 0.6 d) 0.8

121. Consider the differential equation
X^2 d^2/dx^2 + x dy/dx + (x^2 - 4)y = 0. The statement which is not true for it is
a) It is a linear second order ordinary differential equation
b) It can not be reduced to a differential equation with constant coefficients
c) X=0 is a regular singular point
d) It is a non-homogeneous second order ordinary differential equation

122. The sum of two numbers is 16 and the sum of their squares is a minimum. The two numbers are
a) 10,6 b) 9,7 c) 8,8 d) 5,11

123. The value of the definite integral 0∫(π/2)^(1/3) x^2 sin(x^3)dx is
a) -1/3 b) 0 c) 1 d) 1/3

124. A circle C2 is concentric with the circle C1 : x^2 + y^2 -4x +6y -12 =0 and has a radius twice that of C1. The equation of the circle C2 is
a) x^2 + y^2 -4x +6y -13 =0 b) x^2 + y^2 -4x +6y -87 =0 c) x^2 + y^2 -4x +6y -100 =0 d) x^2 + y^2 -4x +6y -88 =0

125. Consider the quadratic equation x^2 + px + q =0. If p and q are roots of the equation, the values of p and q are
a) p=0, q=0 only b) p=1, q=-2 only c) p=0, q=0 and p=1, q=-2 d) p=0, q=0 and p=-2, q=1

126. Consider the list of words: etiquette, accommodate, forty, exaggerate, continous, independent, receipt. The number of misspelt words are
a) 1 b) 2 c) 3 d) 4

127. Consider the following sentences
1. A few friends he has are all very rich.
2. Do not insult the weak.
3. The later of the two persons was more interesting.
4. All the informations were correct.
Out of these sentences, the grammatically correct sentence is
a) 1 b) 2 c) 3 d) 4

128. The appropriate auxiliary verb to fill in the blank of the sentence "Gandhi knew that he __ soon be jailed."is
a) would b) will c) shall d) may

129. The number of missing punctuation marks in the sentence "Rajesh along with Amit went to the market."is
a) 0 b) 1 c) 2 d) 3

130. The meaning of the word PLAGIARISM is
a) theft of public money b) theft of ideas c) belief in one god d) belief in many gods

132. ACROPHOBIA is the abnormal fear of
a) open spaces b) height c) fire d) water

133. The appropriate pair of prepositions to fill in the blank in the sentence "He was angry __ me, because my remarks were aimed __ him."is
a) at,to b) with, at c) with, to d) at, for

134. The appropriate word(s) to fill up the blank in the sentence " I remember __ voices in the middle of the night."is (are)
a) hear b) to hear c) hearing d) heard

135. The passive voice form of the sentence "I have known him for a long time."is
a) He is known to me for a long time.

b) He is known by me for a long time.
c) He has been known to me for a long time.
d) He has been known by me for a long time.

136. If kennel is to a dog, then __ is to a hen.
a) nest b) coop c) hole d) stable

137. If NATION is to 5236765, then NOTION is to
a) 573675 b) 563765 c) 576375 d) 557365

138. The next two numbers of the series 3,5,11,21 are
a) 34 and 52 b) 34 and 53 c) 35 and 52 d) 35 and 53

139. A, B and C are three places in India with longitudes 80E, 85 E and 90 E respectively. Which one of the following statements about the local times of the places is true?
a) Local time of C is ahead of that of B.
b) Local time of B is ahead of that of C.
c) Local time of A is ahead of that of C.
d) A, B and C all have the same local time.

140. In this question, notations +, / and * are used as follows
A + B means A is the husband of B.
A / B means A is the sister of B.
A * B means A is the son of B.
With these relations, the relationship
denoted by P / Q * R is
a) P is son of R
b) P is daughter of R
c) P is uncle of R
d) P is father of R

141. If DELHI is written as EDHIL, then PARIS is written as
a) APRIS b) SARIP c) SAPIR d) APISR

142. The number of prime numbers between 10 and 50 is
a) 10 b) 11 c) 12 d) 13

143. The odd one in the list : LAN, TCP/IP, HACKER and KILLER is
a) LAN b) TCP/IP c) KILLER d) HACKER

144. SAW is to carpenter as SCALPEL is to
a) surgeon b) mason c) plumber d) tailor