BSNL JTO Examination PAPER

1. Of the following bridges the one which can be used for the measurement of dielectric loss of a capacitor is –

a.) Schering bridge

b) Heaviside campbell equal ratio voltage

c) Owen bridge

d) Anderson bridge

2. LBDT is uses as a –

a). Displacement transducer

b) Pressure transducer

c) Temperature

d.) Any of the above

3. Polarization is a measure of -

a.) Dielectric constant per unit volume.

b.)Voltage gradient to produce electrical breakdown

c.) Product of charge and distance

d.)Excess charge density

4. Compared to the inductive type of transducer, capacitive transducer is superior for the measurement of displacement because of -

a.)Absence of non-linearity

b.) High frequency response

c.) Small size

d.) High accuracy

5. An incremental model of a solid state device is one which represents the –

a.) ac property of the device at the desired operating point

b.dc property of the device at all operating points

c.) Complete ac and dc behaviour of the device at all operating points

d.)ac property of the device at all operating points.

6. The ac resistance of a forward biased p-n junction diode operating at a bias voltage 'V' and carrying current 'I' is –

a.)Zero

b.)a constant value independent of Vand I

c.) infinite

d.) any value between 5 to 10.

7. A meter is shielded with a soft iron to –

a.)Prevent damage from rough use
b.) Keep moisture out of movement
c.)Protect meter movement from stray magnetic fields
d.) Achieve all of the above

8. A capacitor that has been connected across a battery for comparatively long time becomes–
a.)Charged
b.) Discharged
c.) Short - circuited
d.) Defective

9. The charge on the plates of a capacitor is given by the expression –
a.) Q = VI
b.) Q = IR
c.) Q = CV
d.) Q = IC

10. Silicon steel used for electrical purposes has silicon percentage of –
a.)0.5
b.) 2.5
c.) 3.4
d). None

11. The feature of VTM is its –
a.)Low input impedance
b.)Low power consumbtion
c.)The ability to measure wider ranges of voltage and resistances
d). None

12. In an N-type semiconductor, the position of the fermi level –
a.)Is lower than the centre of the energy gap
b.) Is at the centre of the energy gap
c.)Is higher than the centre of the energy gap
d.)Can be anywhere depending upon the doping concentration

13. A JFET can operate in –
a.) depletion and enhancement model
b.)depletion mode only
c.)enhancement mode only
d.) neither enhancement nor depletion mode

14. Consider the following semiconductor diodes –
a.)Germanium diode
b.)Silicon diode
c.) Tunnel diode
d.) Schottky diode

15. A diode with a PIV of 50V is likely to break down when rectifying 50v ac supply because –
a.) it is made of defective material
b.) it is incorrectly connected to the supply
c.) peak value of ac supply exceeds the PIV value
d. ac supply is of extremely high frequency.

16. The set of transistor characteristics that enables a to be determined directly from the slope is –
a.) CE transfer characteristics
b. CE output characteristics
c.) CB transfer characteristics
d.) CB input characteristics

17. For an N-channel JFET, the drain voltage has to be –
a.) positive with respect to the source
b.) negative with respect to the source
c.) uncharged with respect to the source
d.)none

18. The SCR is often employed as a –
a.)Source-controlled switch
b.)Drain-controlled switch
c.) Gate-controlled switch
d) None

19. An oscilloscope has an input impedance consisting of 1MW and 20pF in parallel. A high impedance probe connected to the input of this oscilloscope has a 10MW series resistance, this 10MW resistance –
a.) Need not be shunted
b.) Should be shunted by a 2pF capacitor
c.) Should be shunted by a 20pF capacitor
d. Should be shunted by a 200pF capacitor

20. Compared to silicon, gallium arsenide (GaAs) has –
a.)Easier to grow crystals since the vapour pressure of arsenic is high
b.)Higher optolectronic conversion efficiency
c.) Both a and b

d). None

21. When the network shown in the fig draw a current I and if the ends ab are shorted, the current drawn would be –

a.) I
b.) I\ 4
c.) 4 I
d.) 2 I

22. When all the resistances in the circuit are of one ohm each, then the equivalent resistance across the points A and B will be –
a.)1W
b.) 0.5W
c.) 2W
d). 1.5W

23. Of the following periodic waveforms the one having only odd harmonics of sinusoidal waveform is-
a.)1 and 2
b.) 1 and 3
c.)1 and 4
d.)2 and 4

24. When in the network shown in the given fig, the switch K is dosed at t = 0 with the capacitor uncharged then the value for at t = 0+ will be –
a.)100 amp./sec.
b.)–100 amp./sec.
c.)1000 amp./sec.
d.)–1000 amp./sec.
25. For the circuit shown in the given figure, the voltage VAB is –
a.)6V
b.)10V
c.)25V
d.)40V

26. In the network shown in the given fig. current i = 0 when E = 4V, I = 2A and I = 1A when E = 8V, I = 2A. The Thevenin voltage and the resistance into the terminals AB are –

a.)4V, 2W
b.) 4V, 4W
c.) 8V, 2W

d.) 8V, 4W

27. The effective resistance between the terminals A and B in the circuit shown in the fig. is –

R

a.) R
b.) R-1
c.) R/2
d.) 6/11 R

28. When in a two terminal network, the open circuit voltage measured at the given terminals by an electronic voltmeter is 100V and a short circuit current measured at the same terminals by an ammeter of negligible resistance is 5A then if a resistor of 80W is connected at the same terminal, then the current in the load resistor will be –
a. 1A
b.) 1.25A
c). 6A
d. 6.25A
29. If for the network shown in the following fig. the value of Z(s) is then the value of C and R are respectively –

30. In Faraday's induction phenomenon, a changing magnetic field is accompanied by an electric field. Which of the following equation or equations represents it-

31. The electric potential due to an electric dipole of length L at point distance r away from it will be doubled if the -
a.) Length L of the dipole is doubled
b.) r is doubled
c.) r is halved
d) L is halved

32. When a particular mode is excited in a waveguide there appears an extra electric component in the direction of propogation . The resulting mode is
a.) Longitudinal electric
b.) Transverse electromagnetic
c.) Transverse magnetic
d). Transverse electric

33. When for a transmission line the open circuit and short circuit impedance are 20W and 5 W

respectively then the characteristic impedance of the line is -
a.) 100 Ohms
b). 50 Ohms
c.) 25 Ohms
d.) 10 Ohms

34. In an ideal transmission line with matched load, the voltage standing wave ratio and reflection coefficient are respectively -
a.) 1 and 1
b). infinity and 1
c) infinity and 0
d. 1 and 0

35. When an electric charge of 100 coulombs is enclosed in sphere of radius 100 m then the electric displacement density (in coulomb / m2) D is –
a.) 0.0833
b). 0.833
c.) 1.666
d.) 10

36. For the dominant mode in a rectangular wavelength with breadth 10 cm, the guide wavelength for a signal of 2.5 GHz will be -
a.) 12 cm
b.) 15 cm
c.) 18 cm
d.) 20 cm

37. When the phase velocity of an electromagnetic waves depends on frequency in any medium, the phenomenon is called-
a.) Scattering
b.)Polarization
c.) Absorption
d.) Dispersion

38. Antennas commonly used for microwave links are -
a.) Loop antenna
b.) Log-periodic antennas
c.) Paraboloidal dishes
d). Rhombic antennas

39. One of the following instrument which may be used to measure the optical activity of compounds is

–

a.)Infrared spectrometer
b.) Atomic absorption spectrometer
c.) Polarimeter
d.) Flouroscope

40. Schering bridge measures –
a.)Capacitance dielectric loss
b.) Inductance
c.)Resistance
d.) Mutual inductance

41.When a square wave is fed to an RC circuit, then –
a.) voltage across R is square and across C is not square
b.) voltage across C is not square and across R is not square
c.) voltage across both R and C are square
d.) voltage across both R and C are not square

42. The time constant of the RC circuit is –
a.) less than the time period of the input square wave.
b). much larger than the time period of the input square wave.
c. equal to the time period of the input square wave.
d). none

43. Harmonic distortion for each frequency can be obtained by harmonic analyser of the –
a.)heterodyne type
b.) tuned circuit type
c.) fundamental suppression type`
d.) bridge circuit type.

44. A three phase wattmeter requires –
a). only two current coils and two pressure coils
b.)only one current coil and two pressure coil
c.) only two current coils and one pressure coil
d.) only current coil

45. A low pass filter circuit is basically –
a.) a differentiating circuit with low time constant
b.) a differentiating circuit with large time constant.
c.) an integrating circuit with low time constant.
d.)an integrating circuit with large time constant.

46. If the differential pressure in restriction type flow measuring devices is then the flow will be proportional to –

47. When a system is represented by the transfer function then the dc gain of this system is –

a.) 1

b.) 2

c.) 5

d.) 10

48. Silicon based semiconductor device called thyristor was first fabricated by –

a). Jell laboratories in U.S.A

b). Maxwell laboratories in U.S.A

c.) Bell laboratories in U.S.A

d). GEC laboratories in U.S.A

49. A semiconductor based temperature transducer has a temperature coefficient of –2500mV/0C. This transducer is indeed a –

a.)Thermistor

b.) Forward biased pn junction diode

c.)Reverse biased pn junction diode

d.) FET

50. Which of the followings pairs of Telemetry situations and Modulation techniques and conditions is correctly matched-

a.)Pulse amplitude modulation Low amplitude signals

b.)Pulse position modulation For short distance when power is enough

c.) Pulse width modulation Power to be spent in telemetry is required to be low

d.) Pulse code modulation. Minimisation of interference effects.

51. The SCR ratings di/dt in A/m sec and dv/dt in n/m sec, may vary, respectively between-

a.) 20 to 500, 10 to 100

b.)both 20 to 500

c.) both 10 to 100

d.) 50 to 300, 20 to 500

52. Match the given controlled rectifiers with 50 Hz supply

a.)1 phase full converter with source inductance

b.)3 phase full converter

c.)3 phase semiconductor

d.)3 phase halls wave converter

53. For natural or forced commutation the cyclo converters (CCs) requires as under.

a) natural commutation in both step up and step down CCs
b.) forced commutation in both step up and step down CCs
c.) forced commutation in step up CCs
d). forced commutation in step down CCs

54. The peak inverse voltage in ac to dc converter system is highest in-
a). single phase full wave mid point converter
b). single phase full converter
c) 3 phase bridge converter
d). 3 phase half wave converter.
55. A single phase full converter feeds power to RLE load with R = 6 W L = 6 MH and E = 60 V. The ac source voltage is 230 V, 50 Hz, For continuous conduction, the average value of load current for a firing angle delay of 50 is
a.)12.181 A
b). 14.81 A
c). 16.76 A
d.) 32.40 A

56. Which one of the following is the Fourier transform of the signal given in fig. B if the Fourier transform of the signal in fig A is given by -

57. What is 215 complement of 00011100-
a.) 11100011
b.) 10001100
c.) 11100100
d.) 10000111

58. In C programming a expression contains relational operators, assignment operators and arithmetic operators if parentheses is absent then execution follows
a.) assignment, relational, arithmatic
b.) arithmatic, relational, assignment
c.) relational, arithmatic, assignment
d.) assignment, arithmatic, relational

59. In semiconductor memory information stored in form-
a.) binary
b.) hexadecimal
c.) octal
d.) ASCII

60. i\p to Not gate gives o/p as-
a) inversion of some bits
b.) 2's complement of i\p
c.) 1's complement of i\p
d.) o/p is some as i\p

61. A negative logic means-
a .)logic 0 and 1 are represented by a +ve voltage respective
b). logic 0 and 1 are presented as –ve and +ve voltage
c.)logic 0 voltage is higher than logic 1 voltage level
d.) logic 0 voltage is lower than logic 1 voltage level

62. For designing D flip flop from SR FF a circuit is aloud at 01p of SR FF is-
a.) AND
b.) OR
c.) NOR
d.) NOT

63.The transistor shown in fig is

a.) Silicon, NPN with Ic = 0.5 mA
b.) Silicon PNP with Ic = 0.5 mA
c.) Germanium PNP with IE = 0.5 mA
d.) Germanium NPN with Ic=0.5 mA

64.A 20,000 Ohms per volt meter will deflect full-scale with a current of -
a.) 50 mA
b.) 50 mA
c.) 100 mA
d.) 1000 mA

65. A plate modulated class –CRF power amplifier produces 100 KW of radiated power at 100 % modulation. The modulating audio amplifier supplies approximately -------- kW of this power-
a.)50
b).33
c).22
d).11

66..An amplifier without feedback has a distortion of 15 % and gain of 40. When 10% negative feedback

is applied the distortion will become-
a.) 50 %
b). -45 %
c). 3%
d). -5%

67. MODEM implies-
a.)Modulator at transmitting side and ditector at the receiving side
b.)Which deals with analog signals and shows digital information
c.)Analog to digital at transmitting side and digital to analog at a receiving side
d).A device which deals with digital signals only

68. Twisted ring and ring counters are examples of –
a.)Synchronous counters
b.) Asynchronous counters
c.) both a and b
d.) None of the above

69. Specify Non characteristic flip flop in the following –
a.) The outputs are complement of each other
b.) The flip flop has two input signals
c.) The flip flop has two output signals
d). The flip flop is a bistable devise with only two stable states
70. The voltage obtained when digital input is 001 is a 3 bit R-2R ladder DIA converter is-
a.) VR/22
b.) VR/21
c.) VR/23
d.) none of the above

71. Identify NOT an octal number-
a.) 19
b). 15
c.) 77
d.) 101

72. The set of binary digits 01000100 represent's-
a.) number 6810 in a pure binary computer
b.) number 44 in 8421 BCD code
c) Both a and b
d.) None of the above

73. The system matrix of a continuous time system, described in the state variable form is –

The system is stable for all values of x and y satisfying –
a.)$x < 1/2, y < 1/2$
b). $x < 0, y < 2$
c.)$x > 1/2 , y > 0$
d.) $x < 0 , y < 1/2$

74. The break away and break in point in the root locus for open loop transfer function G(S) H(S) = are located respectively at –
a). –2 and -1
b). –2.47 and –3.77
c.) –4.27 and –7.73
d.) –7.73 and –4.27

75. The transfer function for the given system shown in figure is –

76. The type and order of the system whose Nyquist plot is shown in fig is-
a.)0.1
b.) 1,2
c.) 0,2
d). 2,1

77. The overall transfer function in a second order is given by-
Its resonant frequency is -
a.) 2
b.)
c).
d.) 3

78. The detection of an AM waveform in an Envelope –
a.)One side band and full amplitude carrier are needed
b.) Both side bands and full amplitude carrier are needed
c). Only two side bands are needed
d). Upper side band and part of carriers are needed

79. Satellite used for intercontinental communication is known as –
a.) Comsat
b). Dom sat
c.) Mari sat
d). Intelsat

80. Mark out non submarine cable –
a.)TAT – 7
b.) INTELSAT V
c.) ATLANTIS
d.)CANTAT 2

81. The capacity of an analog communication channel with 4kHz bandwidth and 15 dB SNR is approximately-
a). 20,000 bps
b). 16,000 bps
c.) 10,000 bps
d.) 8,000 bps

82. The blind speed of an MTl radar can be avoided by changing the-
a.) Carrier frequency
b.) Pulse repetition frequency
c.)Antenna rotation rate
d.) Transmitted power

83. The output voltage in a feedback series regulator circuit is regulated by controlling the-
a.) Magnitude of the input voltage
b.) Gain of the feedback transistor
c.) Reference voltage
d.) Voltage drop across the series pass transistor

84. Indicate the signal not transmitted in colour TV-
a.) Y
b.) Q
c.) R
d.) I

85. As frequency of singal increases-
a.) Directivity increases & beam width increases
b.) Directivity & beam width decreases
c.) Directivity increases & beam width decreases
d.) Directivity decreases & beam width increases

86. The number of hardware interupts (which require an external signal to interrupt) present in on 8085 mP are
a). 1

b). 4
c.) 5
d.) 13

87. Highest priority interupt is-
a.)INTR
b.)RST 7.5
c.)RST 6.5
d.)TRAP

88. One instruction cycle means-
a.)Time require to execute set of instructions
b.)Time require to execute one instruction
c.) Time require to complete one operation of accessing memory, or I/o
d.) None of above

89. If the clock freq. is 5 mH3 how much time is required to execute on instruction of 18 T-states-
a.)3.6 msec.
b.) 36 m sec.
c.) 36 m sec.
d.) 36 sec.

90. In data transfer operation which flog get affected-
a.)zero flog
b.)carry flog
c.)sign flog.
d.) none

91. CMP instruction comes under group -
a.)Data transfer
b.)Brouching operations
c). Machine control operation
d.) logical operations

92. The logic operation-
a.) are performed in relation to content of Accemce lotor
b).can be performed derectly with content of the register.
c.)are performed without content of a
d.)none of above.

93. What happen when PUSH instruction executed -

a.) data retrieved from stock to register
b.) data from register saved on the stock.
c.) 16 bit address of instruction saved on stock.
d.) 16 bit address from stock retrieved

94. SIM stands for-
a.) serial interface memory
b.) set interrupt mosk
c.) set if minus
d.) set internal memory

95. Maximum clock frequency required to operate 8085-
a.)2 MHz
b.) 3 MHz
c) 6 MHz
d.)9 MHz

96. ASCII code is-
a). 7 bit
b). 8 bit
c.)16 bit
d.) 32 bit.

97. In memory mapped I/O address lines are-
a.) 8
b.) 16
c.) 32
d.) 64

98. The parity bit adding technique is used for -
a.)Indexing
b.)Coding
c.)Error detection
d.)Controlling

99. A demultiplexer-
a.)has multiple i/p and single o/p
b.) has single i/p and multiple o/p
c.) has multiple i/p and multiple o/p
d.) has single i/p and single o/p
100. Subroutines are useful-

a.)to reduce storage requirements
b.) to increase programming speed and reduce storage
c.) most applications are same
d.) but increases expense

101. As daring goes with temerity same way clear-sighted with –
a.)Perspicacity
b.) Impulsiveness
c.)Energy
d.)Clemency

102. A man who visits his friend is a –
a.)Host
b.)Guest
c.)Master
d.) Owner

103. Zealot is –
a.)beginner
b.) Patron
c.) fanatic
d.) Murderer

104 Give the plural of 'Mouse' –
a.)Mouse's
b). Mice
c). Mouse
d). None

105. Find the part of speech of the underlined word –
Shama and Radha were playing together.
a.)Preposition.
b.)Noun
c.)Conjunction.
d) Verb.

106. Which of the following is not one of the multiple names of ganesha?
a). Vinayaka
b). Lambodra
c.) Ekadanta
d.) Vighneshwara

e.)all of the above

107. If a man weighs 60 Kilograms on earth, how much will be his weight on the moon?
a.)50 kg
b.)40 kg
c.)20 kg
d.)10 kg

108. The only Indian star selected for waxing at the famous Madame Tussaud's wax is-
a.)Salman Khan
b.)Amitabh Bachan
c.)ShahRukh Khan.
d.)Raj Kapoor

109 Rate of gowth of per capita income in India drops down to – percent in 2000-2001-.
a.)5.3 percent
b.)3.5 percent
c.)4.8 percent
d.)8.4 percent

110. Ascorbic acid is the chemical name of-
a.)Vitamin A
b.)Vitamin B
c.)Vitamin C
d.) Vitamin D

111. All India Muslim League was founded by-
a.)Nawab Slimullah Khan
b.)Sir Mohd Iqubal
c.) Sir syed Ahmed Khan
d.) Moulana Shaukat Ali

112. Red Blood corpuscles are formed in-
a.)Marrow
b.) Kidney
c). Liver
d). heart

113. The southern most tip of India is in-
a.)Lakshadweeep
b.) Kanya Kumari

c.)Andaman and Nicobar Islands
d.)Rameswaram

114 The first bowler in cricket history to take 500 test wickets is-
a.) Imran Khan
b). Courtney Walsh
c). Shane Warne
d.) Muttiah Murlidharan

115 President of the National Consumer Disputes Redress al Commission (NCDRC) is-
a.) Mr. D.C Wadhwa
b). Mr. A. P Wadhwa
c.) Mr. A. C Wadhwa
d.) Mr. D. P Wadhwa

116. C.V. Raman got Nobel Prize for-
a.)Themodynamics
b.) Quantum theory
c.)Optics and spectroscopy
d.) Nuclear Physics

117. First governor general of Bengal-
a). Lord Clive
b.) Lord warren Hastings
c.)Lord Lytton
d.) Lord Ripon

118. The slogan "Do or Die" is associated with-
a.) Subhash Chandra Bose
b.) Gandhigi
c.) Harijan
d.) Satyagraha

119. Champaran is in the state of-
a). Gujarat
b). Maharashtra
c.) Bihar
d). Madhya Pradesh

120. These tribes are found in central Asia-
a.)Garos

b.)Kirghiz
c.) Lushai
d). Santhals