

BSNL JTO Examination

1. At a frequency below the resonant frequency series circuit is-
 - a.) Inductive
 - b.) Capacitive
 - c.) Resistive
 - d.) None

2. The electrical conductivity of metals is typically of the order of (Ohm⁻¹ m⁻¹) -
 - a.) 10⁷
 - b.) 10⁵
 - c.) 10⁻⁴
 - d.) 10⁻⁶

3. The output of a piezoelectric crystal has-
 - a.) Low amplitude and low impedance
 - b.) High amplitude and high impedance
 - c.) Low amplitude and high impedance
 - d.) High amplitude and low impedance

4. The time constant associated with the capacitor charging in the circuit shown in the given figure is –
 - a.) 6ms
 - b.) 10ms
 - c.) 15ms
 - d.) 25ms

5. The Q factor of an inductor would be higher if it is made of –
 - a.) Thinner wire
 - b.) Longer wire
 - c.) Shorter wire
 - d.) Thicker wire

6. A cavity resonator can be represented by –
 - a.) An LC circuit
 - b.) An LCR circuit
 - c.) A lossy inductor
 - d.) A lossy capacitor

7. Air gap in the iron core of an inductor prevents –
 - a.) Core saturation
 - b.) Hysteresis loss
 - c.) Flux leakage

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d.) Transformer action

8. Between the plates of an air capacitor if a glass slab is slipped without moving the plate then -

- a.) Its capacitance is decreased
- b.) Its capacitance is increased
- c.) Its capacitance is hardly affected
- d.) Capacitor is discharged

9. For current to flow, a circuit must be –

- a.) Isolated
- b.) Insulated
- c.) Complete
- d.) Protected

10. Human ear can detect sound intensities of the order of –

- a.) 10-20 w/m²
- b.) 10-13 w/m²
- c.) 10-6 w/m²
- d.) 10-3 w/m²

11. A FET operates on –

- a.) Majority carriers only
- b.) Minority carriers only
- c.) Positively charged ions only
- d.) None

12. An SCR can conduct for a full half cycle or any part of it –

- a.) and continue conduction for other half cycle
- b.) but blocks the conduction for other half cycle
- c.) nothing can be said
- d.) none

13. In CRT aquadag carries -

- a.) aqueous solution of graphite
- b.) sweep voltage
- c.) secondary emission electrons
- d.) none of the above

14. From the following circuit, in order to obtain a 12-v stabilized supply the input to the terminals A and B should be -

- a.) less than 12v with terminal A positive with respect to terminal B
- b.) greater than 12v with B positive with respect to A

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- c.)less than 12v with A negative with respect to B
- d.)greater than 12v with A positive with respect to B

15. When the value of ICBO in a silicon transistor of $\beta = 49$ is 20 Na then the value of ICEO for a temperature rise of 180c would be –

- a.)8mA
- b.)160 hA
- c.)1mA
- d.)7.84mA

16. MOSFET can operate in –

- a.)Depletion mode
- b.)Enhancement mode
- c.)Depletion-only mode
- d.)Both a & b

17. An SCR is a semiconductor device made up of –

- a) Four N type layers
- b) Two P types and three N type layers
- c) Two P type and two N type layers
- d) Three P type and one N type layers

18. The functions of an oxide layer in an IC device is to –

- a.) mask against diffusion or ion implant
- b.) insulate the surface electrically
- c.) produce a chemically stable protective layer
- d.) all the above

19. One of the following bipolar transistors which has the highest current gain bandwidth product for similar geometry is –

- a.) NPN germanium transistor
- b.) NPN silicon transistor
- c.) PNP germanium transistor
- d.)PNP silicon transistor.

20. With the increasing temperature, the electrical conductivity would –

- a.) Increase in metals as well as in intrinsic semiconductors.
- b.) Increase in metals but decrease in intrinsic semiconductors.
- c.)Decrease in metals but increase in intrinsic semiconductors.
- d.)Decrease in metals as well as in intrinsic semiconductors.

21. For the following circuit, the current X is 3A then the power delivered by the dependent current source D is –

- a.) 50 watts
- b) 50 watts
- c.) 1500 watts
- d.) 15000 watts

22. The current in resistor R shown in the fig. will be –

- a.) 0.2A
- b.) 0.4A
- c.) 0.6A
- d.) 0.8A

23. In the network shown in the given fig. the capacitor C_1 is initially charged to a voltage V_0 before the switch S in the circuit is closed. In the steady state-

- a.) C_1 and C_2 are charged to equal voltages
- b.) C_1 and C_2 are charged with equal coulombs
- c.) C_1 and C_2 are discharged fully
- d.) C_2 alone is charged to voltage V_0

24. The open-loop voltage gain of 741 OPAMP is typically

- (A) 40 dB.
- (B) 200 dB.
- (C) 100 dB.
- (D) 70 dB

25. For the fig. shown the fundamental cutset for the branch 12 is –

- a.) 2, 1, 5
- b.) 2, 6, 7, 8
- c.) 2, 1, 3, 4, 5
- d.) 2, 3, 4

26. Ideally, attenuator pads should not change –

- a.) voltage level
- b.) impedance level
- c.) power level
- d.) voltage, power or impedance level

27. When the two networks are cascaded through an ideal Buffer and if t_{r1} and t_{r2} are the rise times of the two networks, then the overall delay of the two networks together will be –

28. For the network shown in the following fig. one of the following theorems which can be conveniently used to calculate the power consumed by the 10W resistor is –

- a.) Thevenin's theorem
- b.) Maximum power transfer theorem
- c.) Millman's theorem
- d.) Superposition theorem

29 The nodal analysis is primarily based on the application of –

- a.) KVL
- b.) KCL
- c.) Ohm's law
- d.) Both b and c

30. When the driving point impedance of a network at a frequency of 1Hz is then the impedance can be realised as –

31. For a lossless line-

- 1. Series resistance is zero
 - 2. Shunt conductance is zero
 - 3. Shunt conductance is infinite
 - 4. Series resistance is infinite
- a.) 1 & 2
 - b.) 2 & 3
 - c.) 2 & 4
 - d.) 3 & 4

32. 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

33. When an A.M. broadcast radio transmitter radiates 10 kw power when the modulation percentage is 60 then the power of the carrier is-

- a.) 5.00 kw
- b.) 7.69 kw
- c.) 8.47 kw
- d.) 9.17 kw

34. The main components of atmosphere responsible for absorption of em waves are -

- a.) Nitrogen and Oxygen
- b.) Nitrogen and hydrogen
- c.) Oxygen and water vapour
- d.) Nitrogen and water vapour

35. The effective height of a linear antenna of length 'l' is say 'x' when the current distribution along its length is uniform and say, it is 'y' when the current distribution is sinusoidal then x/y is equal to -

- a.) 2
- b.) 1
- c.) 4/π
- d.) π/4

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36. In a hollow rectangular waveguide, the phase velocity -
- Increases with increasing frequency
 - Decreases with increasing frequency
 - Is independent of frequency
 - Will vary with frequency depending upon the frequency range
37. The load resistance needed to extract maximum power from the following circuit is –
- 2W
 - 9W
 - 6W
 - 18W
38. When a transmission line having 50 impedance is terminated in a load of $(40 + j30)$ W then the VSWR is –
- 0.033
 - $0.8 + j 0.6$
 - 1
 - 2
39. The ionosphere plays a significant role in radio wave propagation at-
- High frequencies
 - Ultra-high frequencies
 - Microwave frequencies
 - Optical frequencies
40. When a carrier wave is modulated at 100% its power is increased by-
- 100%
 - 150 %
 - 50%
 - 0%
41. Reluctances in series are –
- Subtractive
 - Additive
 - Multiplicative
 - None.
42. When the meters X and Y requires 40 mA and 50 mA respectively for full scale deflection then –
- X is more sensitive
 - Y is more sensitive
 - both are equally sensitive
 - not possible to determine from the given data.

43. In the context of ac bridge measurement the term "Wagner Ground" means –
- a.) a special RC connection that eliminates stray magnetic effects.
 - b.) any unwanted and unintended ground connection.
 - c.) a large metal plate buried in the ground and connected to one corner of the bridge.
 - d.) a special RC connection that eliminates stray capacitance effects.
44. The gating and counting circuits of a digital counter –
- a.) cannot handle MHz signals
 - b.) cannot handle GHz signals
 - c.) can handle GHz signals
 - d.) none.
45. De- sauty bridge is more widely used because of –
- a.) simplicity
 - b.) perfect balance for imperfect capacitors
 - c.) perfect balance for air capacitors
 - d.) maximum sensitivity.
46. A schottky diode clamp is used along with a switching BJT for –
- a.) reducing the power dissipation.
 - b.) reducing the switching time
 - c.) increasing the value of β
 - d.) reducing the base current.
47. The phenomenon of creeping occurs in –
- a.) Energy meters
 - b.) Ammeters
 - c.) Wattmeter
 - d.) Voltmeters
48. A permanent magnet moving coil measures the –
- a.) true rms value
 - b.) dc value
 - c.) peak value
 - d.) rms plus dc value
49. The D'Arsonval meter movement can be converted into an audio frequency ac ammeter by adding to it a-
- a.) thermocouple
 - b.) rectifier
 - c.) chopper
 - d.) transducer
50. Which one of the following detectors is generally used in ac bridges for audio frequency

range ?

- a.)Ac voltmeter
- b.)CRO
- c.)Headphones
- d.) Vibration galvanometer.

51. In single phase circuit capacitor used for power factor correction decreases –

- a.) The power factor
- b.) The line current
- c.) Both a and b
- d.) The line current and increases power factor

52. In the given figure X the balanced bridge should be

self-inductance having resistance

- b.)A capacitance
- c.)A non-Inductive resistance
- d.)An inductance and a capacitance in parallel

53. SiO₂ layer in an integrated circuit provides –

- a.)Electrical connection to external circuit
- b.) Physical strength
- c.)Isolation
- d.)Conducting path

54. For an SCR with turn on time of 5 microsecond, an ideal trigger pulse should have-

- a.)short rise time with pulse width = 3 m sec
- b.)long rise time with pulse width = 6 m sec
- c.)short rise time with pulse width = 6 m sec
- d.)long rise time with pulse width = 3 m sec

55. In a 3-phase half wave diode rectifier, the ratio of average output voltage to per phase maximum a c voltage is-

- a) 0.955
- b.)0.827
- c.) 1.654
- d.)1.169

56. In multiple pulse modulation used in PWN inverters, the amplitude and frequency for triangular carrier and square reference signals are respectively 4V, 6 KH² and 1V, 1KH². The number of pulses per half cycle and pulse width is respectively-

- a.)6, 900

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- b.)3, 450
- c.)4, 600
- d.) 3, 400

57. A four quadrant operation requires-

- a.)two full converters in series.
- b.) two full converters connected back to back.
- c.) two full converters connected in parallel.
- d.) two semi converters connected back to back

58. In voltage source inverters-

- a.)load voltage waveform o depends on load impedance z , where as load current waveform i_o does not depend on z ,
- b.)Both o and i_o depend on z ,
- c.) o does not depend on z where as depends on z
- d.)both o and do not depend on z

59. For an RC driving – point impedance function, the poles and zeros-

- a.)should alternate on real axis
- b.) should alternate only on the negative real axis
- c.) should alternate on the imaginary axis
- d.) can lie anywhere on the left half place.

60. The functions of connecting a resistor in series with gate - cathode circuit and a zener diode across gate cathode circuit are, respectively to protect the gate circuit from-

- a.) over voltages, over currents.
- b.)over currents over voltages.
- c.)over currents, noise signals
- d.)noise signals, over voltages.

61. The plate efficiency of a class C amplifier is high because-

- a.)A resonant circuit is used as load
- b.) The plate current flows when the instantaneous plate voltage is low.
- c.) The plate current flows only when grid is driven positive
- d.)None of the above

62. The circuit diagram shown in the figure consist of transistor is -

- a.) Parallel connection
- b.) Cascode connection
- c.) Darlington connection
- d.)Cascade connection

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63. Increase of current in one transistor in a direct coupled circuit -
-) Causes an increase in current in other transistors of the circuit
 -) Causes a decrease in current in other transistor
 -) Does not affect the currents of other transistors connected in the circuit
 -) May either increase or decrease currents of other transistors connected in the circuit.
64. In a PNP transistor the charge carriers in the base region which play an important role in the operation of the transistor are-
-) The majority carriers
 -) The minority carriers
 -) Nothing can be said
 -) None of the above
65. Voltage gain in a CC amplifier is-
-) Cannot exceed unity
 -) Is always constant
 -) Is dependent on input signal
 -) Depends on output impedance
66. Random-access-memory means –
-) memory in a random fashion
 -) memory in a zigzag fashion
 -) memory in a circular fashion
 -) memory in a square fashion
67. BCD code is –
-) an alphanumeric code
 -) a binary code
 -) the same thing as binary numbers
 -) non-weighted
68. The transfer function of a system is $\frac{1}{s^2 + 2s + 1}$. The phase shift at $\omega = 0$ and $\omega = \infty$ will be -
-) 90° and -90°
 -) -90° and 90°
 -) -180° and 180°
 -) None of the above
69. Number of resolutions in a 8 bit D/A converter is –
-) 8 bit
 -) 4 bit
 -) 6 bit
 -) 10 bit

70. A bistable multivibrator is used as a –

- a.) Free running multivibrator
- b.) Frequency multiplier
- c.) Frequency divider
- d.) Wave shaper

71. The transfer function of a system is $\frac{1}{s^2 + 2s + 1}$. The phase shift at $\omega = 0$ and $\omega = \infty$ will be –

- a.) 90° and -90°
- b.) -90° and 90°
- c.) -180° and 180°
- d.) none of the above.

72. A forward path transfer function of a unity feedback control system is equal to $\frac{1}{s^2 + 2s + 1}$. The unit step response of this system starting from rest will have its maximum value at a time equal to –

- a.) 0 sec
- b.) 0.56 sec
- c.) 5.6 sec
- d.) infinity.

73. To obtain the output position in a position control system, which one of the following transducers is used-

- a.) Strain Gauge
- b.) Load cell
- c.) Synchro
- d.) Thermistor

74. The maximum resonance peak for the second order transfer function $T(s) = \frac{1}{s^2 + 2\zeta s + 1}$ will be –

- a.) 4
- b.) $\frac{4}{3}$
- c.) 2

75. Considering control system in the given fig .

For slight variation in G , the ratio of open loop sensitivity to closed loop sensitivity will be given by-

- a.) $1 : (1+GH)$
- b.) $1 : (1+GH)^{-1}$
- c.) $1 : (1-GH)$
- d.) $1 : (1-GH)^{-1}$

76. The diversity system in Troposcatter links is made use of to-

- a.) Increase the bandwidth
- b.) Prevent noise effects
- c.) Increase the directivity of the antenna.
- d.) Detect signal in the presence of fading.

77. Mark out wrong statement regarding compander-

- a.) It compresses the higher amplitude parts of a signal before modulation and expands them

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back to normal again after demodulation.

- b.) It gives preferential treatment to the weaker parts of the signal
- c.) For weaker signals, it gives a poor ratio of signal strength to quantizing error.
- d.) Weaker signals, transverse more quantum steps than they would do otherwise and so quantizing error is reduced –

78. Among other equipment a sub marine cable repeater contains –

- a.) A dc power supply and regulator
- b.) Filters for the two directions of transmission
- c.) Multiplexing and demultiplexing equipment
- d.) Pilot inject and pilot extract equipment

79. In a communication system noise is most likely to affect the signal-

- a.) At the transmitter
- b.) In the channel
- c.) In the information source
- d.) At the destination

80. The given circuit is a –

- a.) Monostable multivibrator
- b.) Frequency division circuit
- c.) Miller sweeps circuit
- d.) Bootstrap sweep circuit

81. In a plane transverse electromagnetic wave-

- a.) Angle between electric and magnetic vectors is 0.
- b.) Angle between electric and magnetic vectors is 90
- c.) Angle between electric and magnetic vectors is 180
- d.) None of above.

82. Directional coupler is a function of-

- a.) Two port wave-guide
- b.) Four port wave guide
- c.) Single port wave-guide
- d.) Size port wave-guide.

83. Isolators are used to couple generator and load because –

- a.) It increases power of signal
- b.) To match any load with generator
- c.) To get phase shifted o/p
- d.) To differentiate load & generator

84. In travelling wave tube for getting amplified output -
-)Electron beam travels and RF field remains stationary
 -) Both electron beam and RF field travels in same direction
 -)Both electron beam and RF field remains stationary
 -) RF field travels and electron beam remains stationary
85. Crystal diode works on principle of –
-)Negative resistance
 -)Positive resistance
 -)Square law
 -) Linear impedance
86. In gunn effect oscillator which mode having lowest operating frequency –
-)Domain mode
 -)Delayed domain mode
 -)Quenched domain mode
 -)LSA mode
87. In Reflex klystron maximum energy transferred to gap by electrons-
-)eR
 -)ee
 -)el
 -)eR , ee, el
88. The radio waves get absorbed by atmosphere depends –
-) Their distance from transmitter is long
 -) Wave power is weak
 -)Improper polarization of wave
 -) Frequency of waves
89. 8085 mP has no of sets of communication lines-
-)2
 -) 3
 -) 4
 -) None
90. No. of o/p ports in peripheral mopped I/p are up to-
-)32
 -) 64
 -) 128
 -) 256

91. Is two byte instruction-

- a.) MOV A, B
- b.) ANA B
- c.) MVI B, 92 H
- d.) LHLD 2050 H

92. Branch instructions-

- a.) only uses flogs setting to make decision.
- b.) only sets flogs according to results.
- c.) uses flogs settings as well as sets flogs setting
- d.) nighteruse flog settings not set flogs.

93. What will be the time delay achieved from following loop-

Loop DCX B 6

MOV A, C, 4

ORA B 4

JNZ Loop 10

system clock freg. = 2 MHz.

- a.) 10 m s
- b.) 12 m s
- c.) 14 m s
- d.) 16 m s

94. After execution of pop statement-

- a.) Stack pointer decremented by 2
- b.) Stack pointer incremented by 2
- c.) Stack pointer decremented by 1
- d.) Stack pointer incremented by 1

95. Labels are used as an alternative for-

- a.) Data
- b.) Register name
- c.) Memory address
- d.) Stack pointer

96. Microprogramming is a technique-

- a.) For programming the microprocessor
- b.) For writing small programs efficiently
- c.) For programming the control steps of computer
- d.) For programming o/p / i/p

97. $00110010 - 01000101 = ?$

- a.) 00010011

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- b.)11101101
- c.)11100011
- d.)11100100

98. When an array is passed as an argument to a function what exactly gets passed-

- a.) Address of the array
- b.)Values of elements of array
- c.) Number of elements of array
- d.)Address of the first element of the array

99. A write cycle time means-

- a.) Minimum length of write pulse
- b.) Minimum amount of time for which data must be valid before write pulse end
- c.) Minimum time required between successive write operation
- d.) Minimum time for which data must be valid after write pulse ends

100. If three i/p of a gate are 1, 0, 1 then output is 0 the gate must be-

- a.) NOT
- b.) AND
- c.) OR
- d.)NAND.

101. Inverting amplifier configuration using operational amplifier is –

102. Which logic family is most faster-

- a.) ECL
- b.) DCTL
- c.) RTL
- d) TTL

103. For getting positive o/p from two i/p OR gate for positive logic-

- a.) both i/p must be positive
- b.) both i/p must be negative
- c.) any one of i/p must be positive
- d.) undefined condition

104. Supercilious is –

- a.)Harighty
- b.) High brow
- c.) Angry
- d.) Inane.

105. Give the synonym of 'moribund'-

- a.) Undertaking

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- b.) Burial
- c.) Leather bound
- d.) Dying

106. The convention was to end on May 13 with a month long break in between. What do the two prepositions indicate?

- a.) Duration
- b.) Time
- c.) Direction
- d.) Position

107. According to the writer what influences our dreams-

- a.) inner censorships
- b.) the stories
- c.) the tales
- d.) none.

108. Vaunted is –

- a.) Unvanquished
- b.) Fell.
- c.) Belittled
- d.) Exacting.

109. The sun rays falls vertically on -

- a.) Tropics
- b.) Doldrums
- c.) Poles
- d.) Equator

110. Trimurti is associated with -

- a.) Ellora
- b.) Ajanta
- c.) Khajuraho
- d.) Elephant caves

111. In which year did the congress adopt “Poorna Swaraj” or complete independence as its goal?

- a.) 1930
- b.) 1929
- c.) 1928
- d.) 1942

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112. Director of CBI-

- a.) D.C Sharma
- b.) A. M Shrivastava
- c.) P.C Sharma
- d.) P.C Dole

113. Rajiv Gandhi khel Ratna award for the year 2001 goes to -

- a.) P. gopichand
- b.) P. T Usha
- c.) Sachin Tendulkar
- d.) Gurpreet Singh

114. During which time is vist to Mecca treated as Haj?

- a.) Id-UI-Fitr
- b) Id-ul-Zuha
- c.)Milad-un-Nabi
- d.) Any time

115. Of the 109 known metals, how many occur in nature and how many are produced synthetically in particle accelerators!

- a.) 79 and 10
- b.) 80 and 29
- c.) 95 and 14
- d.) None can be produced synthetically

116. Earth's average speed per second around the sun is -

- a.) 30 km
- b.) 32 km
- c.) 34 km
- d.) 35 km

117. Governor of Reserve Bank of India is -

- a.) Bimal Jalan
- b.) C. Ranga Rajan
- c.) Rana Malhotra
- d.) S. Venkata Ramanan

118. The first pope to enter a mosque in Damascus syria is -

- a.) Pope John Paul II
- b.) Pope John Paul I
- c.) Pope John Paul III
- d.) Pope John Paul V

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119. Uranium is found in the state of -

- a.) Orissa
- b.) A. P
- c.) Karnataka
- d.) Bihar

120. Nuclear Power plant in Pakistan is located at-

- a.) Karachi
- b.) Peshawar
- c.) Ellipse
- d.) Paraboloid

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