

BSNL GE-JTO Recruitment Examination

Test Paper – V

1. 1. Reactive current through the inductive load produces-a) Magnetic field b) Electric field c) Super magnetic field d) None
2. 2. When a piece of copper and another of germanium are cooled from room temperature to 800 K then the resistance of a) each of them increases b) each of them decreases c) copper increases and germanium decreases d) copper decreases and germanium increases
3. 3. A capacitance transducer has two plates of area 5 cm² each separated by an air gap of 2mm. Displacement sensitivity in pF/cm due to gap change would be a) 11.1 b) 44.2 c) 52.3 d) 66.3
4. 4. The critical angle in degrees, for an electromagnetic wave passing from Quartz ($\mu = \mu_0$, $\hat{I} = 4\hat{I}_0$) into air is-a) 15 b)30 c)45 d)90
5. 5. When an RC driving point impedance function has zeros at $s = -2$ and $s = -5$ then the admissible poles for the function would be – a) $s = 0$; $s = -6$ b) $s = -1$; $s = -3$ c) $s = 0$; $s = -1$ d) $s = -3$; $s = -4$
6. 6. A capacitor used for **power factor correction** in single- phase circuit decreases – a) the power factor b) the line current c) Both the line current and the power factor d) the line current and increases power factor
7. 7. The unit of inductance is – a) ohm b) inductive reactance c) inducta d) Henry
8. 8. Which type of by-pass capacitor works best at high frequencies – a) electrolytic b) mica c) ceramic d) plexiglass
9. 9. The usual value of the surge impedance of a telephone line is – a) 600 W b) 500 W c) 75 W d) none
10. 10. Telemetering is a method of – a) counting pulses, sent over long distances b) transmitting pictures from one place to another c) transmitting information concerning a process over a distance d) None
11. 11. In an unbiased P-N junction thickness of depletion layer is of the order of – a) 0.005 mm b) 0.5 mm c) 5 mm d) 10-10 m
12. 12. One of the semiconductor device, which behaves like two SCRs is– a) UJT b) triac c) JFET d) MOSFET
13. 13. The following, which is not an advantage of semiconductor **strain gauges** as compared to conventional strain gauges, is – a) excellent hysteresis characteristics b) least sensitive to temperature changes c) high fatigue life d) smaller size
14. 14. The fundamental ripple frequency of a half wave 3F rectifier with a 3F supply of frequency 50 Hz is – a)150 Hz b) 50 Hz c) 100 Hz d) 250 Hz.
15. 15. For an FR biased PNP transistor – a) base is negative with respect to emitter b) collector is positive with respect to emitter c) collector is a little more positive than base d) base is a little less positive with respect to emitter than collector
16. 16. With normal operation of a JFET one can get I_{DSS} – a) the maximum drain current b) the minimum drain current c) normal drain current d) none
17. 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

17. 18. For a UJT, if R_1 = resistance from emitter to base 1, R_2 = resistance from emitter to the base 2 and $R_{BB} = R_1 + R_2$ then the intrinsic stand off ratio (η) is –

- a)
- b)
- c)
- d)

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18. 19. As the drain voltage is increased for a junction FET in the pinch off region then the drain current –

- a) becomes zero
- b) abruptly decreases
- c) abruptly increases
- d) remains constant

19. 20. When the energy gap of a semiconductor is 1.1eV then it would be –

- a) opaque to the visible light
- b) transparent to the visible light
- c) transparent to the infrared radiation
- d) opaque to the infrared radiation

20. 21. The equivalent capacitance across ab will be –

d) 0

21. 22. In the following fig. the power dissipated is maximum when the value of R_x is – a) 33.4 K b) 17.6 K c) 10 K d) 5 K

22. 23. The transfer function of a low pass RC network is –

23. 24. The total capacitance across points 'a' and 'b' in the given figure is – a) 1.66 mF b) 2.66 mF c) 3.5 mF d) 4.5 mF

24. 25. .The load resistance needed to extract maximum power from the following circuit is – a) 2W b) 9W c) 6W d) 18W

25. 26. Which one of the following conditions for z parameters would hold for a two port network containing linear bilateral passive circuit elements – a) $z_{11} = z_{22}$ b) $z_{12}z_{21} = z_{11}z_{22}$ c) $z_{11}z_{12} = z_{22}z_{21}$ d) $z_{12} = z_{21}$

26. 27. In the network shown, the switch is opened at $t = 0$. Prior to that, the network was in the steady state, $V_s(t)$ at $t = 0$ is – a) 0 b) 5V c) 10V d) 15V

27. 28. Which of the following statements are correct –

- 1. 1. Tellegen's theorem is applicable to any lumped network
- 2. 2. The reciprocity theorem is applicable to linear bilateral networks.
- 3. 3. Thevenin's theorem is applicable to two terminal linear active networks.
- 4. 4. Norton's theorem is applicable to two terminal linear active networks. a) 1, 2 and 3 b) 1, 2, 3 and 4 c) 1, 2 and 4 d) 3 and 4

29. Which one of the following transfer functions represents the critically damped system ?

2. 30. When the respective coil impedance of the circuit shown in the fig. is are $Z_1 = (5 + j8)\Omega$ and $Z_2 = (3 + j8)\Omega$ then the input impedance of the circuit will be – a) $(8 + 16j)\Omega$ b) $(2 + j0)\Omega$ c) $(15 + 64j)\Omega$ d) $(8 + 0j)\Omega$

3. 31. One of the following statement which is not correct a) In case of an antenna, the radiation resistance and loss resistance are not two different quantities. b) The loss resistance includes loss by eddy currents, improper earth connections, insulation leakages etc) but not I^2R losses c) Radiation resistance varies directly as square root of the frequency d) None of the above

4. 32. Ultraviolet radiation emitted when electron jumps from an outer stationary orbit to - a) first stationary orbit b) second stationary orbit c) third stationary orbit d) fourth stationary orbit
5. 33. When the signal is propagated in a waveguide which has a full wave of electric intensity change between the two farther walls and no component of the electric field in the direction of propagation then the mode is - a) TE₁₁ b) TE₁₀ c) TM₂₂ d) TE₂₀
6. 34. Consider the following statements pertaining to parabolic antenna - 1. It is commonly used above 1GHz
1. 2. It gets circularly polarized
 2. 3. Its radiation pattern is highly directional
 3. 4. Its radiation pattern is cardioid of these statements - a) 1, 2 and 4 are correct b) 1 and 3 are correct c) 1, 2 and 3 are correct d) 2 and 4 are correct
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1. 35. When a vertical dipole antenna is used in conjunction with a loop antenna for direction finding, then the field pattern obtained will be
2. 36. When one end of a lossless transmission line of length $3/8 \lambda$ and characteristic impedance R_0 is short circuited and the other end is terminated in R_0 then the impedance at $1/8 \lambda$ away from the end terminated in R_0 is a)
- Zero
 - b) R_0
 - c) $R_0/2$
 - d) Infinite
3. 37. For transmission of wave from a dielectric permittivity $\hat{\epsilon}_1$ into dielectric medium of lower permittivity $\hat{\epsilon}_2$ ($\hat{\epsilon}_1 > \hat{\epsilon}_2$) the critical angle of incidence Q_c (relative to the interface) is given by
4. 38. A transmission line has primary constants R, L, G and C and secondary constants Z_0 and g ($= a + jb$) if the line is lossless then .
5. 39. The intrinsic impedance of a free space is
6. 40. One of the following which is a low gain but **omni directional** antenna is a)
- discone
 - b) log-periodic
 - c) loop
 - d) helical
7. 41. Electronic voltmeters have -
- a) high input impedance
 - b) low input impedance
 - c) zero input impedance
 - d) none
8. 42. Which of the following statement about impulse voltage is true ? a) An impulse voltage is an unidirectional voltage.
- b) In chopped impulse voltage, flashover does not occur.
 - c) Time taken to rise is exactly equal to the time taken to fall.
 - d) RMS value of impulse voltage is always less than 50% of average value.
9. 43. The precision of an instrument indicates its ability to reproduce a certain reading with a given -
- a) drift
 - b) resolution
 - c) shift.
 - d) consistency

44. In heterodyne digital conductor, the input signal is heterodyned to a –
a) higher frequency

b) lower frequency c) both a and b d) none

10. 45. In a digital measuring device, if the input electrical signal is in the frequency range dc to f_{max} Hz, then it must be sampled at a rate of –

a) f_{max} times/sec

b) f_{max} times/ses

c) every $2f_{max}/\text{sec}$

d) $2 f_{max}$ times/sec .

11. 46. Moving Iron instruments measures the rms value of –

a) a direct quantity

b) an alternating quantity

c) a virtual quantity.

d) none.

12. 47. One of the following instruments which is used almost exclusively to measure radio frequency current is a)

Moving coil meter

b) Rectifier-type moving coil meter

c) Iron-vane meter

d) Thermocouple meter.

13. 48. A good ohmic contact on a p- type semiconductor chip is formed by introducing –

a) gold as an impurity below the contact

b) a high concentration of donors below the contract

c) a high concentration of acceptors below the contact

d) a thin insulator layer between the metal and semiconductor.

14. 49. The use of thermocouple meters for ac measurement leads to a meterscale which is –

a) linear

b) square law

c) logarithmic

d) exponential

15. 50. If low pressure of the order of 10-6mm of Hg is to be measure then the instrument of choice would be a)

b) thermocouple vacuum gauge

c) pirani gauge

d) ionization type vacuum gauge

51.

In the given circuit if the power dissipated in the 6W resistor is zero then V is –

a) b) c) d)

16. 52. The equivalent circuit of a resistor is shown in the given figure. The resistor will be non inductive if –

a)

b)

c)

d)

17. 53. SCR turns OFF from conducting state to blocking state on –

a) reducing gate current

b) reversing gate voltage

c) reducing anode current below holding current value

d) applying ac to the gate

18. 54. Static V-I characteristics of an SCR with different gate drives applied to the gate are indicated by a)

I₉₂ > I₉₁ > I₉₀

b) V₉₂ > V₉₁ > V₉₀

c) P₉₂ > P₉₁ > P₉₀

d) either a or b

19. 55. Each diode of a 3 phase, 6-pulse bridge diode rectifier conducts for a) 60°

b) 120°

c) 180°

d) 90°

20. 56. A load, consisting of R = 10Ω and wL = 10Ω is being fed from 230 V, 50 Hz source through a 1 phase voltage controller. For a firing angle delay of 30°, the rms value of load current would be a) 23 A

21. 57. The total number of SCRs conducting simultaneously in a 3 phase full converter with overlap considered has the sequence of a)

3, 3, 2, 2

b) 3, 3, 3, 2

c) 3, 2, 3, 2

d) 2, 2, 2, 3

22. 58. A single phase voltage controller, using two SCRs in antiparallel is found to be operating as a controlled rectifier. This is because

a) load is R and pulse gating is used

b) load is R and high frequency carrier gating is used

c) load is RL and pulse gating is used

d) load is RL and continuous gating is used

23. 59. The inverse Fourier Transform of

24. 60. In a GTO anode current begins to fall when gate current a)

is negative peak at time t = 0

b) is negative peak at t = shortage period t_s

c) just begins to become negative at t = 0

d) is negative peak at t = (t_s + fall time)

25. 61. Power amplifiers and Audio use a) Ferrite core

b) Air core

c) Solid iron core

d) Laminated iron core

26. 62. The amplifiers which are inserted at intervals amplify the signal and compensate for transmission loss on the cable are called a)

Line amplifiers

b) Equalizing amplifiers

c) Repeaters

d) Compondors

27. 63. A solid state device named TRIAC acts as a ----- switch

a) 3 terminal unidirectional

b) 2 terminal unidirectional

c) 3 terminal bi-directional

d) 2 terminal bi-directional

28. 64. Identify the fastest logic circuit when speed of operation is concerned a)

TTL

- b) RTL
- c) DTL
- d) ATL

28. 65. An amplifier CE is characterized by a)

Low voltage gain

- b) Moderate power gain
- c) Very high output impedance
- d) Signal phase reversal

29. 66. The standard symbol for EX-OR gate is –

- a) b)
- c) d)

30. 67. Boolean algebra is based on –

- a) numbers
- b) logic
- c) truth
- d) symbols

31. 68. Magnetic amplifiers are used for –

- a) voltage amplification
- b) power amplification
- c) current amplification
- d) frequency amplification

32. 69. Number of resistors required for an N bit D/A converter in R-2R ladder D/A converter is a)

- 4N
- b) 1N
- c) 3N
- d) 2N

33. 70. 'Not allowed' condition in NAND gate SR flip flop is –

- a) $s = 0, R = 0$
- b) $s = 1, R = 1$
- c) $s = 0, R = 1$
- d) $s = 1, R = 0$

34. 71. . In a PID controller the transfer function $G(s)$ is

35. 72. A time invariant linear stable system is forced with an input $x(t) = A \sin \omega t$ under steady state conditions, the output $Y(t)$ of the system will be –

- a) $A \sin (\omega t + \phi)$, where $\phi = \tan^{-1}G(j\omega)$
- b) $A G (j\omega) A \sin [\omega t + G(j\omega)]$
- c) $G (j\omega) A \sin [2 \omega t + G (j\omega)]$
- d) $G (j\omega) A \sin [\omega t + G (j\omega)]$

$x(t) \text{-----} G(s) \text{-----} y(t)$

36. 73. Mark the wrong statement for two phase servo motor –

- a) The rotor diameter is small
- b) The rotor resistance is low
- c) The applied voltages are seldom balanced
- d) The torque speed characteristic are linear.

_. 74. The gain phase plot of open loop transfer function of four different systems labelled A, B, C, and D

are shown in the figure. The correct sequence of the increasing order of stability of the

- _ .four systems will be a) A, B, C, D b) D, C, B, A c) B, A, D, C, d) B, C, D, A
 37. 75. A unity feedback system has $G(S) = \frac{1}{s^2 + 2s + 1}$. In the root locus, the break away point occurs between a) $S = 0$ and -1 b) $S = -1$ and $-\infty$ c) $S = -1$ and -2 d) $S = -2$ and $-\infty$ BSNL Recruitment Question Paper free - previous years 2005 2006 2007 2008 download here. JTO Placement paper for BSNL .
38. 76. Twice in a year a few minute disturbance occurs in space communication during sun-blinding when --- are in line a) Sun and satellite b) Sun and earth station c) Satellite and earth station d) Sun, satellite and earth station
39. 77. The traffic handling capacity of an Earth station on the up link depends on-a) It's EIRP b) Satellite antenna gain c) Noise associated with the satellite d) All of the above
40. 78. A supergroup pilot is – a) applied at each multiplexing bay b) used to regulate the gain of individual repeaters c) applied at each adjustable equalizer d) fed in at a GTE
41. 79. If the antenna diameter in a radar system is increased by a factor of 4, the maximum range will be increased by a factor of a) $\sqrt{2}$ b) 2 c) 4 d) 8
- _ .80. In the given circuit the capacitor C is almost shorted for the frequency range of interest of the input signal . Under this condition the voltage gain of the amplifier will be $h_{ie} = 1K$ – a) 0.33 b) 0.5 c) 0.66
 _ .d) 1
42. 81. Microwave frequency band is a) 30 MHz –300 MHz
 b) 300 MHz –3 GHz
 c) 300 MHz –10 GHz
 d) 300 MHz – 30 GHz
43. 82. Directional couplers are designed as a) coupler of two-wave guide
 b) measuring instrument to measure power of signal through wave-guide
 c) director to the signal flow
 d) None of the above
44. 83. Gyator has a a) Phase difference of 180° for transmission from port 1 to port 2 & no phase shift for transmission from port 2 to port 1
 b) Phase difference of 180° for transmission from port 1 to port 2 & no phase shift for transmission from port 1 to port 2
 c) 180° phase difference for transmission from either port
 d) 0° Phase difference for transmission from either port
45. 84. In klyrtron tube for getting oscillations a) electron beam travels & RF field remains stationary
 b) both electron beam & RF field travels in same direction
 c) both electron & RF field remains stationary
 d) RF field travels & electron beam remains stationary
46. 85. The most noisy among below is –
 a) IMPATT diode
 b) Klyrtron
 c) GUNN diode
 d) TWT amplifier
47. 86. The GUNN mode of gunn effect oscillator is also called as –
 a) Domain mode
 b) Delayed domain mode
 c) Quenched domain mode

d) LSA mode

48. 87. The total noise voltage across series ckt is –

- a)
- b)
- c)
- d)

49. 88. The vertical height of F1 layer in ionospheric layer is –

- a) 180 km
- b) 70 km
- c) 110 km
- d) 400 km

50. 89. 8085 mP contains instruction in instruction set a) 64

- b) 74
- c) 246
- d) 256

51. 90. If the clock freq. is 5 MHz how much time is required to execute on instruction 18 Tstates a)

- 3.6 m sec)
- b) 36 m sec)
- c) 36 m sec)
- d) 36 sec)

52. 91. In 8085 mP a word is equal to a)

- 8 bit
- b) 16 bit
- c) 32 bit
- d) 64 bit

53. 92. The instruction used to set continuous loops a)

- JC
- b) JMP
- c) JP
- d) JPE

54. 93. What happens when RET instruction is executed a) data retrieved from stack to register

- b) data from register saved on the stack
- c) 16 bit address of instruction saved on stack.
- d) 16 bit address from stack retrieved

55. 94. DMA is a process a)

Interrupt data transfer.

- b) high speed data transfer under control of microprocessor
- c) high speed data transfer under control of DMA controller.
- d) Interrupt data read

56. 95. No. of boolean functions can be generated from 3 variables a)

- 4
- b) 8
- c) 16
- d) 256

57. 96. The data storage in dynamic RAM is cell of – a) capacitance b) transistor c) flip flop d) transistor acting as capacitor

58. 97. What is 9's complement of 23 a) 76 b) 77 c) 78 d) 79

59. 98. An array is a collection of a) different data types scattered throughout memory b) same data type scattered throughout memory c) same data type placed next to each other in memory d) different

data type placed next to each other in memory

59. 99. While reading from the memory location for active high i/p pins-a) Read and chip select i/p must be at logical 0 level b) Read at 0 and chip select at logical 1 level c) Read at 1 and chip select at logical 0 level d) Read and chip select i/p must be at logical 1 level

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101. The fan out comparison between TTL logic and DRL logic is a) Both logic having higher fan out b) TTL logic having higher fan out than DRL logic c) TTL logic having lower fan out than DRL logic d) Both logic having lower fan out

102. I was asked to perform the task of numbering points we had scored – a) sad b) said c) tallow d) strenous

103. The taste is rancid as the rank is – a) odour b) look c) smell d) sound

104. Troupe is a group of performers in a – a) play b) circus c) cinema d) orchestra

105. Complete the sentence with correct alternative He is --- well today-a) no b) none c) not d) nought

106. Fritter is – a) sour b) chafe c) dissipate d) cancel

107. The sun rays falls vertically on-a) Tropics b) Doldrums c) Poles d) Equator

108. In India 'Lotus' award is given in the field of-a) Literature b) Films c) Sports d) Social Service

109. The Chauri-Chaura incident is related to a) A major offensive by underground revolutionaries b) Large scale looting of government property by congress worker c) Massive police firing on unarmed satyagrahis d) the burning of a police post by a mob

110. Dadamuni Ashok Kumar deceased on-a) 10 December 2001 b) 20 December 2001 c) 10 January 2001 d) 20 January 2001

111. The first batsman in Test history to aggregate 350 plus runs in a Test Match isa) Sanath Jaisurya b) Brian Lara c) Sachin Tendulkar d) Steve Waugh

112. Antibiotics which are effective against more than one type of bacteria are known asa) Surya drugs b) Multibiotics c) Broad-spectrum d) Anti metabodies

113. The books Sushrut Sanhita and Charak S anhita are related to-a) Hindu rituals b) Interpretation of Puranas c) Interpretation of Vedas d) Ayurvedic system of medicine

114. An enzyme is a protein that a) Is used by the body as a food b) Acts as an organic catalyst c) Forms the hair and nails of the body d) Make up the membranes of the cells

115. Atal Behari Vajpayee was Prime Minister for 13 days ina) May 1996 b) June 1997 c) September 1996 d) July 2000

116. RBI lowers the deposit rates ceiling for non banking finance companies from 14 percent to – percent per annum-a) 12.5 b) 11.5 c) 10.5 d) 9.5

117. Booker prize is won in the field of a) Science b) Medicine c) Fiction writing d) Adventure

118. Leprosy is caused by-a) Bacterium b) Virus c) Protozoa d) Helminthes

119. . Zojila is a pass between-a) Kashmir valley and Ladakh b) Lahaul valley and Spiti c) Chumbi valley and Sikkim d) Aurnachal Pradesh and Tibet

120. Deforestation results in

1. 1. Flora destruction

2. 2. Fauna destruction

3. 3. Ecological misbalancea) 1, 2 and 3 b) 1 and 3 c) 1 and 2 d) 2 and 3