

## BSNL Whole Testpaper

1. When a piece of copper and another of germanium are cooled from room temperature to  $80^{\circ}$  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
2. When a signal of 10 mV at 75 MHz is to be measured then which of the following instrument can be used -
  - a) VTVM
  - b) Cathode ray oscilloscope
  - c) Moving iron voltmeter
  - d) Digital multimeter
3. When a sample of germanium and silicon having same impurity density are kept at room temperature then –
  - a) Both will have equal value of resistivity
  - b) Both will have equal value negative resistivity
  - c) Resistivity of germanium will be higher than that of silicon
  - d) Resistivity of silicon will be higher than that of germanium
4. 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)  $s = 0$ ;  $s = -3$
  - c)  $s = 0$ ;  $s = -1$
  - d)  $s = -3$ ;  $s = -4$
5. 5. For the n-type semiconductor with  $n = N_p$  and  $p =$   , the hole concentration will fall below the intrinsic value because some of the holes –
  - a) drop back to acceptor impurity states
  - b) drop to donor impurity states
  - c) Virtually leave the crystal
  - d) recombine with the electrons

6. The location of lightning arrestor is –
- a) Near the transformer
  - b) Near the circuit breaker
  - c) Away from the transformer
  - d) None
7. Time constant of an RC circuit increases if the value of the resistance is –
- a) Increased
  - b) Decreased
  - c) Neither a nor b
  - d) Both a and b
8. 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
9. When the gauge factor of a strain gauge is 2, stress is  $1050 \text{ kg/cm}^2$ ,  $Y = 2.1 \times 10^6 \text{ kg/cm}^2$  and R is 100 ohms then the value of DR will be –
- a) 2W
  - b) 3W
  - c) 4W
  - d) 1W
10. 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
11. One of the following, which is not a transducer in the true sense, is –
- a) Thermocouple
  - b) Piezoelectric pick up
  - c) Photo-Voltaic cell
  - d) LCD
12. When a transistor is required to match a 100W signal source with a high impedance output

- circuit then the connection that would be used is –
- a) Common base
  - b) Common collector
  - c) Common emitter
  - d) Emitter follower
13. In a JFET gates are always –
- a) forward biased
  - b) reverse biased
  - c) unbiased
  - d) none
14. The main factor which differentiates a DE MOSFET from an E only MOSFET is the absence of –
- a) insulated gate
  - b) electrons
  - c) channel
  - d) P-N junction
15. An SCR conducts appreciable current when –
- a) Anode and gate are both negative with respect to cathode
  - b) Anode and gate are both positive with respect to cathode
  - c) Anode is negative and gate is positive with respect to cathode
  - d) Gate is negative and anode is positive with respect to cathode
16. Silicon is not suitable for fabrication of light emitting diodes because it is -
- a) An indirect band gap semiconductor
  - b) A direct band gap semiconductor
  - c) A wide band gap semiconductor
  - d) A narrow band gap semiconductor
17. An average responding rectifier type electronic ac voltmeter has its scale calibrated in terms of the rms value of a sine wave, when a square wave voltage of peak magnitude 100V is measured using this voltmeter then the reading indicated by the meter, will be –
- a) 111V
  - b) 100V
  - c) 90.09V
  - d) 70.7V
18. When a four terminal T network is inserted between a source and load resistance as shown in figure then the resistance seen by the source remains the same with or without the four

terminal block when R is –

- a) 5W
- b) 10 W
- c) 15 W
- d) 20 W

19.19. In the ac bridge shown in the given figure, the value of  $R_x$  and  $C_x$  at balance will be –

20. 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)  $Z_{12} = Z_{21}$

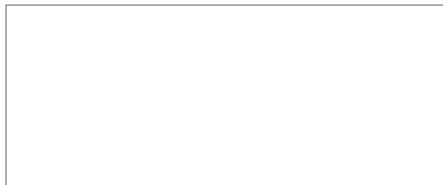
21. When the transmission parameters of the following network are  $A = C = 1$ ,  $B = 2$  and  $D = 3$  then the value of  $Z_{in}$  is –



c) 3W

d) 4W

22. The value of  $G_{12}$  or  for the circuit shown in the fig. is –



23. The two port network of the fig. shown has open circuit impedance parameters given by matrix –





24. In the circuit shown, the switch closes at  $t = 0$ . The voltage across 4mF capacitor in ideal condition changes to –



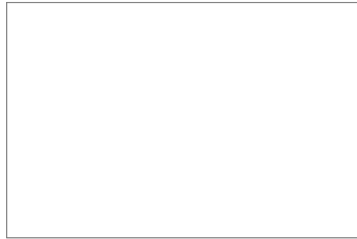
- a) 0
  - b) 16V
  - c) 15V
  - d) 24V
25. While calculating  $R_{th}$ , constant current sources in the circuit are –
- a) replaced by opens
  - b) replaced by ,shorts,
  - c) treated in parallel with other voltage sources
  - d) converted into equivalent voltage sources
26. Maxwell,s loop current method of solving electrical networks –
- a) uses branch currents
  - b) utilizes kirchhoff,s voltage law
  - c) is confined to single-loop circuits
  - d) is a network reduction method
- 27.A transmission line of characteristic impedance  $Z_0 = 50$  ohms, phase velocity  $V_p = 2 \times 10^8$  m/s and length  $l = 1$ m is terminated by a load  $Z_L = ( 30 - j 40 )$  ohms. The input impedance of the line for a frequency of 100 MHz will be
- a)(30 + j40 ) ohms
  - b)( 30 – j40 ) ohms
  - c)(50 + j40 ) ohms
  - d)(50 – j40 ) ohms
- 28.For an elliptically polarized wave incident on the interface of a dielectric at the Brewster angle then the reflected wave will be-

- a) Elliptically polarized
  - b) Linearly polarized
  - c) Right circularly polarized
  - d) Left circularly polarized
29. A yagi antenna has a driven antenna-
- a) Only
  - b) With a reflector
  - c) With one or more directors
  - d) With a reflector and one or more directors
30. The number of lobes on each side of a  $\lambda/2$  resonant antenna is –
- a) 3
  - b) 6
  - c) 2
  - d) 1
31. The electric field intensity of a Hertzian dipole at a remote point varies as-
- - 
  - 
  -
32. Radiation resistance of a half wave folded dipole is -
- a) 72 W
  - b) 144W
  - c) 288 W
  - d) 216W
33. When a carrier wave is modulated at 100% it's power is increased by -
- a) 100%
  - b) 150 %
  - c) 50%
  - d) 0%
34. On a clear sky day, the atmospheric radio noise is strongest -

- a) During morning hours
  - b) Around mid-day
  - c) During nights
  - d) In the afternoon
35. TV broadcasting system in India is as per CCIR -
- a) System B
  - b) System I
  - c) System M
  - d) System X
36. For the safety measurement of the internal resistance of a 25-0-25 mA meter, a laboratory multimeter whose sensitivity is equal to –
- a) 1k ohm/volt can be used
  - b) 10 k ohm/volt can be used
  - c) 100 k ohm/volt can be used
  - d) 200 k ohm/volt can be used
37. In order to measure moisture in wood the most suitable method is –
- a) Electrical conduction
  - b) Electrical – capacitive
  - c) Absorption of radiation
  - d) Equilibrium- moisture vs humidity
38. The flow rate of electrically conducting liquid without any suspended particles cannot be measured by –
- a) turbine flow meters
  - b) electromagnetic flow meters
  - c) ultrasonic flow meters
  - d) thermistor based heat loss flow meters
39. The most useful transducer for displacement sensing with excellent sensitivity, linearity and resolution is –
- a) an incremental encoder
  - b) an absolute encoder
  - c) LVDT
  - d) a strain gauge



40. When variable reluctance type tachometer has 150 teeth on the rotor & the counter records 13,500 pulses per second then the rotational speed will be—
- a) 4800 rpm
  - b) 5400 rpm
  - c) 6000 rpm
  - d) 7200 rpm.
41. On a voltage scale, zero dB m in a 600-ohm system could refer to —
- a) 1.732 V
  - b) 1.0 V
  - c) 0.7746 V
  - d) 0.5V
42. One of the following devices which is required in addition in order to measure pressure using LVDT is—
- a) strain gauge
  - b) pitot tube
  - c) Bourden tube
  - d) Rotameter
43. It is required to measure temperature in the range of  $1300^{\circ}\text{C}$  to  $1500^{\circ}\text{C}$  c) The most suitable thermocouple to be used as a transducer would be —
- a) chromel - constantan
  - b) Iron - constantan
  - c) chromel - alumel
  - d) platinum- rhodium
44. In a CSI if frequency of output voltage is  $f$  Hz, then frequency of input voltage to CSI is—
- a)  $f$
  - b)  $2f$
  - c)  $f/2$
  - d)  $3f$
45. Identify the type of chopper in the given circuit



- a) Type A chopper
  - b) Type B chopper
  - c) Type C chopper
  - d) Type D chopper
46. Maximum value of charging resistance in an UJT is associated with-
- a) peak point
  - b) valley point
  - c) any point between peak and valley
  - d) after the valley point
47. Thyristor A has rated gate current of 2A and thyristor B a rated gate current of 100 mA-
- a) A is a GTO and B is a conventional SCR
  - b) B is a GTO and A is a conventional SCR
  - c) B may operate as a transistor
  - d) none of the above
48. In a 3 phase full converter, the output voltage during overlap is equal to-
- a) zero
  - b) source voltage
  - c) source voltage minus the inductance drop
  - d) average value of the conducting phase voltages
49. Mark old the correct statement for Cycloconverters-
- a) step-down Cycloconverter (CC) works on natural commutation
  - b) step up CC requires no forced commutation
  - c) load commutated CC works on line commutation
  - d) none of the above
50. In a 3 phase full converter if load current is  $I$  and ripple free, then average thyristor current is-
- a)

b)

c)

d)

51. In the RF amplifier stage cascade (CE-CB) amplifier is used because it gives-

- a) Large voltage gain
- b) Low output impedance
- c) Large isolation between the input and the output
- d) None of the above

52. Silicon diode is less suited for low voltage rectifier operation because-

- a) it can withstand high temperature
- b) ensures low PIV of the diodes
- c) ensures lower values of capacitance in the filter
- d) reduces ripple content

53. An amplifier of class A is that in which -

- a) Base is biased to cut – off
- b)  $I_C$  flows most of the time
- c)  $I_e$  flows all the time
- d)  $V_C$  often raises to  $V_{CC}$

54. A transistor is in active region when-

- a)  $I_B = \beta I_C$
- b)  $I_C = \beta I_B$
- c)  $I_C = I_E$
- d)  $I_C = I_B$

55. For coupling purposes in RF amplifier a buffer amplifier is used because it provides-

- a) Maximum loading and minimum mismatch
- b) Minimum loading and minimum mismatch
- c) Maximum loading and maximum mismatch
- d) Minimum loading and maximum mismatch

56. A transistor has CE parameter as  $h_{ie} = 10k\Omega$ ,  $h_{re} = 20 \times 10^{-4}$ ,  $h_{se} = 100$ ,  $h_{oe} = 25 \mu s$ . The  $h_{ib}$  for this transistor will be-

- a) 100 W
- b) 99.01 W
- c) 5m W
- d) 101kW

57. An FM radio receiver is tuned to a 90.6 MHz broadcast station. It will receive an image frequency of -

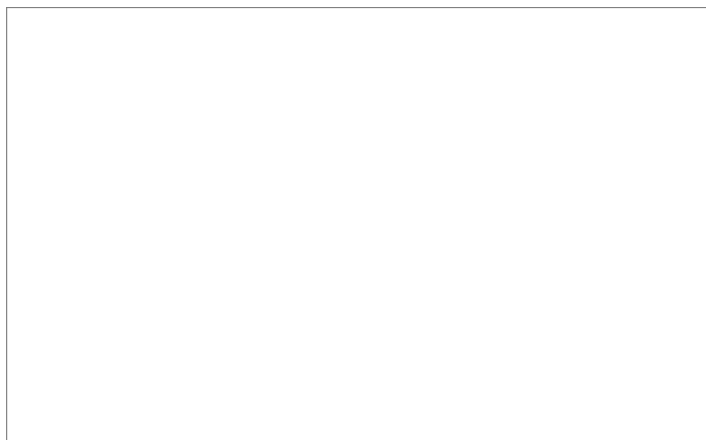
- a) 110 MHz
- b) 112 Hz
- c) 114 MHz
- d) 120 MHz

58. In the given fig  $R_L$  is shorted out, then  $V_{CE}$  will become-



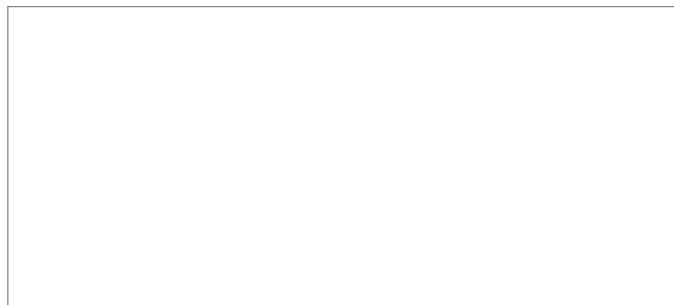
- a) 0V
- b)  $V_{CC} - I_B R_B$
- c) Equal to  $V_{CC}$
- d) None of the above

59. See the circuit shown and choose the correct option -



- a) Only red will glow
- b) Only green will glow

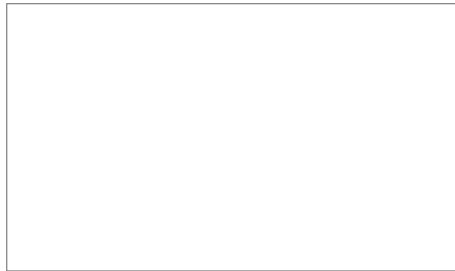
- c) Both red and green will glow
  - d) Neither red nor green will glow
60. A dc to dc converter having an efficiency of 80% is delivering 16W to a load) If the converter is generating an output of 200V from an input source of 20V, then the current drawn from the source will be –
- a) 0.1A
  - b) 0.5A
  - c) 1.0A
  - d) 10.0A
61. A transistor is operated as a non-saturated switch to eliminate –
- a) storage time
  - b) turn – off time
  - c) turn – on time
  - d) delay time
- 62.. The output Y of the circuit in the given figure is –



- a)  $(A + B)C + DE$
  - b)  $AB + C(D + E)$
  - c)  $(A + B)C + D + E$
  - d)  $(AB + C) \cdot DE$
63. Rotors used in a two-phase ac servomotor is –
- a) solid iron motor
  - b) squirrel cage rotor
  - c) drag cup rotor
  - d) both b and c
64. Major advantage of TWT over a klystron lies in its –
- a) higher bandwidth
  - b) higher output
  - c) higher frequency

d) higher gain

65. The op-amp circuit shown in the given figure can be used for –



a) addition

b) subtraction

c) both addition and subtraction

d) multiplication

66. The Boolean expression for the shaded area in the given Venn diagram is –



67. A lag compensator is basically a –

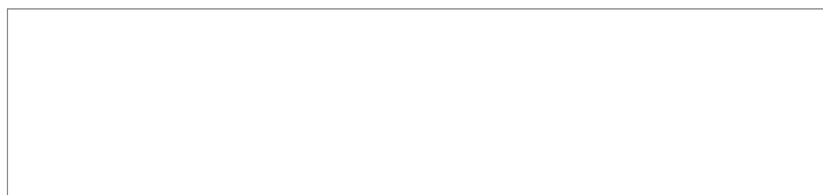
a) high pass filter

b) band pass filter

c) low pass filter

d) band elimination filter

68. Transfer function  $T(S)$  of the system in the given fig is-



69. The overall transfer function for a unity feedback system is

Mark the correct statement regarding this system

1. Position error constant  $k_p$  for the system is 4
2. The system type one.
3. The velocity error constant  $k_v$  for the system is finite.

Select the correct answer using the codes given below-

Codes

- a) 1,2 and 3
- b) 1 and 2
- c) 2 and 3
- d) 1 and 3

70. If the rotor's resistance and reactance are respectively  $R$  and  $X_1$  its length and diameter are  $L$  and  $D$  for two phase a) c) servomotor, then-

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

72. Transfer function  can be approximated by the system-

73. The transfer function of an amplifier is given by

The high 3 db frequency of an amplifier will be approximately-

- a) 5850 kHz
- b) 585 kHz
- c) 5850 Hz
- d) 585 Hz

74. An open loop transfer function is given by

Its - loci will be-





- 75.. The output signals amplitudes for 1,s and 0,s in an ADM transmission systems are –
- a) Fixed and the repetition rate is also fixed
  - b) Fixed but the repetition rate is variable
  - c) Variable and the repetition rate is also variable
  - d) Variable but the repetition rate is fixed
76. Microwave link repeaters are typically 50km apart –
- a) Because of atmospheric attenuation
  - b) Because of Output tube power limitations
  - c) Because of the earth,s curvature
  - d) To ensure that the applied ac voltage is not excessive
- 77.. The amplifier inserted at intervals to amplify the signal and compensate for transmission loss on the cable are called-
- a) line amplifier
  - b) equalizing amplifiers
  - c) compradors
  - d) repeaters.
- 78.Diversity reception in used to-
- a) increase receiver sensitivity
  - b) improve receiver selectivity
  - c) overcome degrading effect of fading
  - d) overcome degrading effect of receiver detuning
79. Mark out transferred electron device in the following-
- a) BARITT diode
  - b) IMPATT diode
  - c) Gunn diode
  - d) Step recovery diode

80. In the output of a normal monochrome receiver video detector voltages, which are not found, are -

- a) syne
- b) video
- c) sweep
- d) sound

81. The HV anode supply for the picture tube of TV receiver is generated in the-

- a) mains transformer
- b) vertical output stage
- c) horizontal output stage
- d) horizontal deflection oscillator

82. In antenna measurements using two aperture antennas of dimensions  $D_1$  and  $D_2$ , minimum separation between the two should be ( $\lambda$  is free space wavelength of radiation uses)

83.. The frequency range for satellite broad casting is –

- a) 30 MHz – 300MHz
- b) 30 MHz – 3 GHz
- c) 3 GHz – 30 GHz
- d) 30 GHz – 300 GHz

84. Iris is used to –

- a) Over come power loss
- b) Over come bending effect
- c) Over come mismatch error
- d) Over come twist effect

85. In schottky barrier diode current flows because of –

- a) Majority carriers

- b) Minority carriers
  - c) Majority and minority carriers
  - d) None
- 86.. Which antennas are used in microwave communication –
- a) long wave antennas
  - b) Rhombic antennas
  - c) Paraboloidal antennas
  - d) All of above
87. Among translator & line of sight system capacity –
- a) Of translator is more
  - b) Of line of sight is more
  - c) Having equal capacity
  - d) No relation such as
88. No of T-state required for memory read or write operation-
- a) 2
  - b) 3
  - c) 4
  - d) 6
89. In data transfer operation which flag get affected)-
- a) carry flog.
  - b) carry flog
  - c) sign flog.
  - d) none
90. In flowchart which figure represents process like subroutine-
- - 
  - 
  -

91. The storage and retrieval of data on stacks should follow sequence-

- a) last in first out
  - b) first in first out
  - c) random in random out
  - d) none
- 92.. While executing program microprocessor checks INTR line clearing-
- a) each instruction
  - b) after interval of two instruction
  - c) after a subroutine
  - d) at the end of program.
- 93.93. In which error check technique of data communication 2's complement of all bytes of data is transmitted with data-
- a) Even parity
  - b) odd parity
  - c) check scans
  - d) cyclic redundancy
- 94.. Program execution hierarchy decides which operator-
- a) is most important
  - b) is used first
  - c) is fastest
  - d) operators on largest number
95. .  $(375)_{10} = (----)_8$
- a) 550
  - b) 557
  - c) 567
  - d) 577
- 96.To obtain 2048  $\square$  8 memory using 128  $\square$  8 memory chip how many IC required-
- a) 2
  - b) 4
  - c) 8
  - d) 16

97.A Decimal no. 17 can be converted in binary, the binary no. will be.-

- a) 10001
- b) 01110
- c)00111
- d) 11100

98.Is the Universal logic gate-

- a) AND
- b) OR
- c) NAND
- d) X-OR

99. A monostable state in multivibrator means-

- a) which returns itself to its single stable state
- b) the state used only once in circuit
- c) the state of circuit can not get changed
- d) the state of circuit always changing

100.For designing binary counter which flip flop is preferred -

- a) T FF
- b) SR FF
- c) D FF
- d) JKFF

101. His handwriting was not ----- so I could not read his note –

- a) attractive
- b) eligible
- c) clear
- d) legible

102.They started to ----- people into the theatre only at six -

- a) enter
- b) admit
- c) follow
- d) accept

103. I told him to buy things that are lasting (Give the appropriate synonym of the underlined word).

- a) ending
- b) ordinary

- c) durable
  - d) cheap
104. Give the word which is most opposite in meaning of the word ,evident,-
- a) doubtful
  - b) unimportant
  - c) disagreed
  - d) understood
105. I expressed by disagreement ----- him on that issue-
- a) between
  - b) with
  - c) about
  - d) for
106. 'Sugarbowl' of the world is -
- a) India
  - b) Cuba
  - c) Brazil
  - d) USA
107. Palk strait separates-
- a) India and Srilanka
  - b) India and Burma
  - c) Britain and France
  - d) Malaysia and Sumatra
108. The minimum number of atoms in a molecule of an element are-
- a) 1
  - b) 5
  - c) 2
  - d) 10
109. Tides in the sea are caused by-
- a) Effect of sun
  - b) Effect of moon
  - c) combined effect of moon and sun
  - d) Gravitational, centrifugal and centripetal forces
- 110.. The Bar council of India decided to close over law colleges across the country for their failure to maintain minimum teaching standard) There number is

- a) 140
  - b) 200
  - c) 150
  - d) 100
111. Aswan Dam is located in-
- a) Egypt
  - b) Libya
  - c) Sudan
  - d) Iran
112. Ghana Birds sanctuary is in the state of -
- a) Rajasthan
  - b) Madhya Pradesh
  - c) Uttar Pradesh
  - d) Maharashtra
113. Dry ice is-
- a) Frozen carbon monoxide
  - b) Frozen carbon dioxide
  - c) Frozen ammonia
  - d) None of these
114. East flower river of India is -
- a) Cauvery
  - b) sone
  - c) Narmada
  - d) Tapti
115. The total length of the great wall of China is –
- a) 1,400 miles
  - b) 1,500 miles
  - c) 1,300 miles
  - d) 1,400 miles
116. Deficiency of vitamin C may result in-
- a) beriberi
  - b) night blindness
  - c) dermatitis

d) Scurvy

117. Bharat Shah a film financier was granted bail by Supreme Court after a period of –

- a) 11 months
- b) 2 years
- c) 18 months
- d) 15 months

118. Indian local time is based on-

a)  $80^{\circ}$  E longitude

b)  E longitude

c)  $110^{\circ}$  E longitude

d)  $25^{\circ}$  E longitude

119. The two days Shiv Shena Mahashivir of 2002 started at Shirdi on –

- a) 9<sup>th</sup> April 2002
- b) 10<sup>th</sup> April 2002
- c) 8<sup>th</sup> April 2002
- d) 11<sup>th</sup> April 2002

Which one is a good preservative of food?

120.a) Spirit

- b) Formaldehyde
- c) Sugar
- d) None of the above