

## BSNL Whole Testpaper

1. Reactive current through the capacitive load produces -  
a) Magnetic field  
b) Electric field  
c) Supermagnetic field  
d) None
2. One of the following which gives piezo-electric effect is -  
a) Mu metal  
b) PVDF  
c) Sapphire  
d) Ferrites
3. PZT piezo- electric materials have -  
a) Higher curie temperature  
b) Lower curie temperature  
c) Absolute temperature  
d) None
4. The residual resistivity of a binary alloy at OK is -  
a) The sum of the residual resistivities of the component metals  
b) The difference of the residual resistivities of the component metals.  
c) The product of the residual resistivities of the component metals  
d) Dependent on the concentration of the minor component in the alloy
5. In active filter circuits, inductances are avoided mainly because they -  
a) Are always associated with some resistance  
b) Are bulky and unsuitable for miniaturisation  
c) Are non-linear in nature  
d) Saturate quickly
6. The depletion layer across a p-n junction lies -  
a) mostly in the p-region  
b) mostly in the n-region  
c) equally to both p and n region  
d) entirely in the p-region
7. The voltage induced in a loop of wire rotating in a strong and steady magnetic field is -

- a) pulsating dc
  - b) dc
  - c) rectified ac
  - d) ac
8. One of the following types of capacitor which is polarized is -
- a) Electrolytic
  - b) Ceramic
  - c) Paper
  - d) Mylar
9. Electric shock is-
- a) Always fatal
  - b) Never fatal
  - c) Sometimes fatal
  - d) Always disfiguring
10. A typical value of filter capacitor for 50 Hz ripple is -
- a) 16mF
  - b) 10F
  - c) 10mF
  - d) None
11. A telephone relay armature is made of material with -
- a) High electrical conductivity
  - b) Low electrical conductivity
  - c) Negligible conductivity
  - d) None
12. Larger the value of filter capacitor -
- a) Larger is the peak-peak value of ripple voltage
  - b) Larger is the peak current in the rectifying diode
  - c) Longer is the time that current pulse flows through the diode
  - d) Smaller is the dc voltage across the load
13. Barrier potential in a P-N junction is caused by -
- a) Thermally generated electrons and holes
  - b) Diffusion of majority carriers across the junction
  - c) Migration of minority carriers across the junction

- d) Flow of drift current
14. The polarity of  $V_{GS}$  for E-only MOSFET is -
- a) positive
  - b) negative
  - c) zero
  - d) depends on P or N channel
15. The following which will serve as a donor impurity in silicon -
- a) Boron
  - b) Indium
  - c) Germanium
  - d) Antimony
16. When bias applied to a vari-cap diode is increased, its capacitance -
- a) is decreased
  - b) is increased
  - c) remains constant
  - d) first increases and then decreases.
17. In case of a bipolar transistor  $\alpha$  is -
- a) positive and greater than 1
  - b) positive and less than 1
  - c) negative and greater than 1
  - d) negative and less than 1
18. A BJT is -
- a) not very sensitive to radiations
  - b) very sensitive to radiations.
  - c) independent of radiations
  - d) none
19. An SCR may be considered to be -
- a) 2 diodes
  - b) 3 diodes
  - c) 4 diodes
  - d) 5 diodes
20. For a BJT, under the saturation condition -
- a)  $I_C = \beta I_B$

- b)  $I_C > \beta I_B$
- c)  $I_C$  is independent of all other parameters
- d)  $I_C < \beta I_B$

21. In modern MOSFET's the material used for the gate is -

- a) High purity silicon
- b) High purity silica
- c) Heavily doped polycrystalline silicon
- d) Epitaxial grown silicon

22. Find the Norton,s equivalent of the circuit given below -

<?XML:NAMESPACE PREFIX = V />

23. When the source in the circuit shown is a sinusoidal source then the input voltage is -



- a) 10V
- b) 5V
- c) 27V
- d) 24V

24. The time constant of the network shown in the given figure is given by -



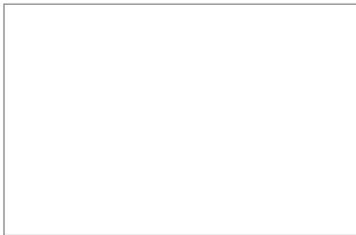
25. The voltage transfer ratio of two-port networks connected in cascade may be conveniently obtained from the -

- a) product of the individual ABCD matrices of the two networks
- b) product of voltage transfer ratios of the two individual networks
- c) sum of the Z- matrices of the two networks
- d) sum of the h – matrices of the two networks

26. When a network has response with time as shown in fig. then which one of the following diagrams represents the location of the poles of this network ?



27. For the network shown in the given fig. the ratio  is -



28. An attenuator drops a 10V signal to 50mv in an experiment. The loss in decibels is -

- a) -40dB
- b) -6dB
- c) -55dB
- d) -60dB

29. When the network has 10 nodes and 17 branches then the number of different node pair voltages would be -

- a) 7
- b) 9
- c) 10
- d) 45

30. The circuit shown in the following fig. will act as an ideal current source with respect to terminals A and B when frequency is -

- a) zero

- b) 1rad/s
  - c) 4rad/s
  - d) 16rad/s
31. When a short vertical grounded antenna is required to radiate at 1MHz and the effective height of the antenna is 30 m then the calculated value of the radiation resistance is -
- a) 1.58 W
  - b) 158 W
  - c) 15.8 W
  - d) None of these
32. Shannon's law relates -
- a) antenna gain to bandwidth
  - b) frequency to antenna gain
  - c) antenna gain to transmission losses
  - d) information carrying capacity to S/N ratio
33. One of the following modes which has the characteristic of attenuation becoming less as the frequency is increased and is attractive at microwave frequencies of circular cylindrical wave guides is -
- a)  $TE_1$  mode
  - b)  $TM_{01}$  mode
  - c)  $TE_{01}$  mode
  - d) Higher order mode
34. For a transmission line, the propagation constant, for a TEM wave travelling in it is given by (Where the symbols have the usual meanings) -
- a)  $[(R+j\omega L)(G+j\omega C)]$
  - b)  $[R+j\omega L)(G+j\omega C)]^{1/2}$
  - c)  $[(R-j\omega L)(G+j\omega C)]^{1/2}$
  - d)  $[(R-j\omega L)(G+j\omega^2 C)]^{1/3}$
35. The advantages of wave guides over co-axial lines would include which of the following features-
1. Easier to use
  2. lower power losses
  3. Higher operating frequencies possible
- a) 1 and 2
  - b) 1 and 3
  - c) 2 and 3

- d) 1,2 and 3
36. When a 75 ohm transmission line is to be terminated in two resistive loads  $R_1$  and  $R_2$  such that the standing pattern in the two cases have the same SWR, then the values of  $R_1$  and  $R_2$  (in ohms) should be -
- a) 250 and 200 respectively
  - b) 225 and 25 respectively
  - c) 100 and 150 respectively
  - d) 50 and 125 respectively
37. The degenerate modes in a wave guide are characterized by -
- a) Same cut off frequencies but different field distribution
  - b) Same cut off frequencies and same field distributions
  - c) Different cut off frequencies but same field distributions
  - d) Different cut off frequencies and different field distributions
38. A TEM wave impinges obliquely on a dielectric-dielectric boundary with  $E_{r1}=2$  and  $E_{r2}=1$ , the angle of incidence for total reflection is -
- a)  $30^\circ$
  - b)  $60^\circ$
  - c)  $45^\circ$
  - d)  $90^\circ$
39. The radiation pattern of Hertzian dipole in the plane perpendicular to the dipole is a -
- a) Null
  - b) Circle
  - c) Figure of eight
  - d) None of the above
40. Permeance is the -
- a) square of reluctance
  - b) reluctance
  - c) reciprocal of the reluctance
  - d) cube of the reluctance.
41. One of the following which is an active transducer is -
- a) Photoelectric
  - b) Photovoltaic
  - c) Photo-conductive
  - d) Photo emission



42. The wein bridge uses only -

- a) Inductors
- b) Capacitors
- c) Resistors
- d) Capacitors and Resistors.

43. The greater the value of Q -

- a) higher will be the bandwidth of the resonant circuit.
- b) smaller will be the bandwidth of the resonant circuit.
- c) nothing can be said)
- d) none.

44. The most serious source of error in a) c) bridge measurement is -

- a) eddy currents
- b) leakage currents
- c) residual imperfectness
- d) stray fields.

45. Moving iron instruments -

- a) have a linear scale
- b) do not have a linear scale
- c) both a and b)
- d) none.

46. If accuracy is the main consideration, which one of the following voltmeters should one select -

- a) 100 v ; 2 mA
- b) 100 v ; 100 ohm/volt
- c) 100 v ; 1mA
- d) 10,000 v ; 10 mA

47. In dc tacho generators used for measurement of speed of a shaft, frequent calibration has to be done because -

- a) the contacts wear off
- b) the strength of permanent magnet decreases with age
- c) the armature current produces heating effect
- d) there is back emf.

48. Ideal transformer cannot be described by -

- a) h parameters

- b) ABCD parameters
- c) G parameters
- d) parameters

49. Consider the following statements -

A3- phase balanced supply system is connected to a 3 phase unbalanced load) Power supplied to this load can be measured using

1. Two wattmeters
2. One wattmeter
3. Three wattmeters

Which of these statements is/are correct?

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

50. The function of the reference electrode in a pH meter is to -

- a) Produce a constant voltage
- b) Provide temperature compensation
- c) Provide a constant current
- d) Measure average pH value

51. Match the column A (Devices) with column B (Characteristics) and select the correct answer by using the codes given below the column -

Column A

Column B

A) BJT

1. Voltage controlled negative resistance

B) MOSFET

2. High current gain

C) Tunnel diode

3. Voltage regulation

D) Zener diode

4. High input impedance

Codes :

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

52. A thyristor during forward blocking state is associated with.-

- a) large current , low voltage.

- b) low current , large voltage.
  - c) medium current , large voltage
  - d) low current, medium voltage.
53. In controlled rectifiers, the nature of load current i.e. whether load current is continuous or discontinuous -
- a) does not depend on type of load and firing angle delay
  - b) depends both on the type of load and firing angle delay
  - c) depends only on the type of load)
  - d) depends only on the firing angle delay.
54. A single phase voltage controller feeds power to a resistance of 10 W . The source voltage is 200 V rms. For a firing angle of  $90^\circ$  , the rms value of thyristor current in amperes is -
- a) 20
  - b) 15
  - c) 10
  - d) 5
55. In the performance of single phase and three phase full converters the effect of source inductance is to
- a) reduce the ripples in the load current -
  - b) make discontinuous current as continuous
  - c) reduce the output voltage
  - d) increase the load voltage.
56. The cycloconverters (CCs) require natural or forced commutation 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
57. Power transistors are more commonly of -
- a) silicon npn type.
  - b) silicon pnp type.
  - c) silicon nnp type.
  - d) silicon npp type.
58. C is a -
- a) Middle level language
  - b) High level language

c) Low level language

d) None of above

59. What will be output of program

```
main ( )
{ int i ;
print f ("Enter value of i");
scant ("%d", & i);
if ( i = 5 )
print f ("you entered 5");
else
print f ("you entered %d", i ); }
if user entered 100 then
```

a) 5

b) 100

c) 1005

d) None

60.  $(7F)_{16} + (BA)_{16} = (?)_{16}$ -

a) 481

b) 139

c) -481

d) -139

61. Two's complement of 3 bit nonzero binary number is same or original number is all bits accepts-

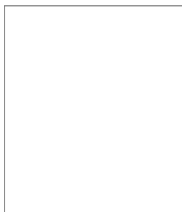
a) MSB are zeros

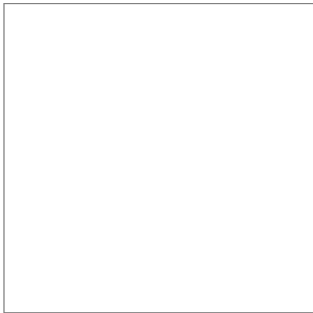
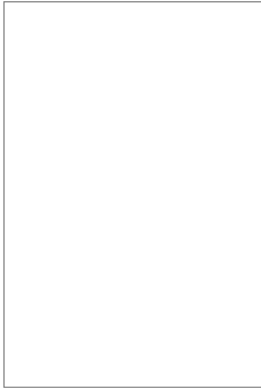
b) LSB are zeros

c) MSB are ones

d) LSB are ones.

62. The schematic circuits of RTL NOR gate is-





63. Transistors with high frequency have -

- a) Thick base
- b) Thin base
- c) Some other feature
- d) None of the above

64. Telephone traffic is specified in terms of -

- a) Average waiting time
- b) Grade of service
- c) Peak waiting time
- d) Erlangs

65. In a Hartley oscillator -

- a) Necessary phase relation is obtained by connecting grid and plate electrodes to the opposite ends of the tuned circuit.
- b) The mutual inductance must have the appropriate polarity.

- c) Both grid circuit and plate tuned circuit offer inductive reactance
- d) None of the above

66. The condenser C is charged in a bootstrap sweep generator -

- a) Linearly but the discharge is non linear
- b) Non linearly but the discharge is linear
- c) Linearly and the discharge is linear
- d) Non linearly and the discharge is non linear

- In an audio amplifier audio signals become garbled and hence difficult to understand when an ac input current is large enough to drive the output to -

- a) saturation only
- b) Cut off only
- c) Either saturation or cut off
- d) A value off the load line

- Five 1 bit registers are referred as -

- a) Flags
- b) Slags
- c) Tags
- d) None of the above

- Next binary number after 0,1, 10, 11 is -

- a) 12
- b) 101
- c) 100
- d) 110

- Identify coincidence logic circuit in the following –



- The output analog voltage  $V_o$  is given by -

<?XML:NAMESPACE PREFIX = W />

- If an inverter is placed at the input to an SR flip flop, the result is -

- a) T flip flop
- b) D flip flop
- c) JK flip flop
- d) BCD decade counter

- See the Root locus diagram of a system and the following statements :-



1. The open loop system is a second order system.
2. The system is over damped for
3. The system is absolutely stable for all value of R.

Which of these statements are correct?

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

- For the transfer function  $G(S)H(S) = \frac{\quad}{\quad}$  the phase cross over frequency is -

- a) 0.5 rad/sec
- b) 0.707 rad/sec
- c) 1.732 rad/sec
- d) 2 rad/sec

- If the open loop transfer function of the system is  $G(S) H(S) = \frac{\quad}{\quad}$

then a closed loop pole will be located at  $S = -12$  when the value of  $K$  is -

- a) 4355
- b) 5760
- c) 9600
- d) 9862

- Considering the following open loop transfer function -

The correct sequence of these systems in increasing order of the time taken for the unit step response to settle is –

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

- Considering unit feed back control system in the given figure, the ratio of time constant of closed loop response to open loop response will be -

- a) 1: 1
- b) 2 :1
- c) 3 : 2
- d) 2 : 3

- Angle subtended by earth at geostationary communication satellite is -

- a)  $17.34^{\circ}$
- b)  $51.4^{\circ}$
- c)  $120^{\circ}$
- d)  $60^{\circ}$

- For data transmission phase modulation is commonly used because -

- a) Phase can be varied from  $+180^{\circ}$  to  $-180^{\circ}$
- b) It is resistant to the effects of noise.
- c) Demodulation is very easy
- d) It gives highest data rates that can be transmitted over a given channel.



- Several channels are interleaved and then transmitted together is known as –

- a) Frequency division multiplex
- b) Time division multiplex
- c) A group
- d) A super group

- Identify the wrong statement-

The radar cross section of a target -

- a) Depends on the frequency used
- b) May be reduced by special coating of the target
- c) Depends on the aspect of a target, if this is non spherical
- d) Is equal to the actual cross-sectional area for small targets.

- Considering following parameters -

1. Loss in the media) 2. Permeability of the media) 3. Frequency of the wave 4. Velocity of the wave. Which of these parameters are responsible for the change of phase of a propagating electromagnetic wave?

- a) 1, 2, and 3
- b) 2, 3 and 4
- c) 1, 3 and 4
- d) 1 and 4

- In super heterodyne receivers double spotting is caused by -

- a) poor front-end rejection
- b) misalignment of receiver
- c) detuning of one or more IF stages.
- d) non functioning of AGC

- The number of lines per field in the United States TV system is -

- a)  $262\frac{1}{2}$
- b) 525
- c) 30
- d) 60

- In a TV receiver the color killer -

- a) cuts off the chroma stages during monochrome receivers.
- b) ensures that no color is transmitted to monochrome receivers
- c) prevents color overloading
- d) makes sure that the color burst is not mistaken for sync pulses, by cutting off reception during

the back porch.

- The nominal capacitance of a coaxial RF cable is of 40 pF/m and the characteristic impedance of 50Ω. The inductance of the cable is-

- a) 1mH/m
- b) 10 mH/m
- c) 0.1 mH/m
- d) 0.01 mH/m

- Transmission of wave through Dominant mode is -

- a) distortion less transmission
- b) generates undesirable harmonic distortion
- c) having loss of power
- d) None of above.

- Lower the standing wave ratio (SWR) -

- a) Greater mismatch error
- b) Lower mismatch error
- c) No effect on matching
- d) Moderate mismatch error

- In klystron oscillator for getting wide range of oscillations resonators should be -

- a) Critically coupled
- b) Under coupled
- c) Over coupled
- d) No coupling required

- The critical frequency is always -

- a) Lower than maximum usable frequency
- b) Equal to maximum usable frequency
- c) Higher than maximum usable frequency
- d) None of above

- The PIN diode based on -

- a) Nonlinear resistance
- b) Nonlinear reactance
- c) Negative resistance
- d) Controllable impedance

- Which antenna having circular polarization -

- a) Horn antenna

b) Lens antenna

c) Helical antenna

d) Discone antenna

- The i/p S/N ratio of system is 50 and the o/p S/N ratio is 5 the noise figure is -

a) 250

b) 55

c) 10

d) 45

- In the 8085 mP, the RST 6 instruction transfers the program execution to the following location -

a) 30 H

b) 24 H

c) 48 H

d) 60 H

- In instruction cycle first operation is -

a) Memory read

b) Address read

c) Opcode fetch

d) Data read

- CMP instruction comes under group -

a) Data transfer

b) Branching operations

c) Machine control operation

d) Logical operations.

- In which logic operation does not effect any flags -

a) ANA B

b) ORA B

c) XRI A2H

d) CMA

- What happen when CALL 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)

- The mark status of mark able interrupts is defined according to content of -

- a) stack pointer.
- b) HL register .
- c) Program counter
- d) Accumulator

- The decoder is a logic ckt that -

- a) Amplifies the current or power at i/p.
- b) Identifies each combination of the signals present at i/p
- c) Provides appropriate code as o/p for each i/p signal
- d) Both b & c)

- The young man was quickly promoted when his employers how ----- he was -

- a) indigent
- b) indifferent
- c) assiduous
- d) cursory.

- As letter is alphabet so zodiac is -

- a) almanac
- b) beacon
- c) sign
- d) signal.

- What is the correct meaning of prudish.?

- a) careful
- b) fast
- c) God
- d) brave

- Pick out the odd matching with reference to number -

- a) woman – women.
- b) hair – hairs
- c) child – children.
- d) foot – feet.

- Choose the phrase that is most nearly similiar in meaning to the word given below-

Abut is

- a) Stimulate

b) Grasp

c) Oppose

d) Adjoin

- The highest mountain peak in Indian Territory is -

a) Mount Everest

b) Kanchenjunga

c) Nanda Devi

d) Mount Kailash

- German silver is an alloy comprising -

a) Copper, Nickel and Zinc

b) Silver, copper and Zinc

c) Silver Nickel and Zinc

d) Nickel, Zinc and Lead

- Mughal Emperor Bahadur Shah Zafar's mausoleum is in -

a) Delhi

b) Lahore

c) Yangon

d) Agra

- On which date the World Trade Centre in New York and Pentagon in Washington d)C was attacked by terrorist -

a) 12 September 2001

b) 11 September 2001

c) 11 July 2001

d) 20 December 2001

- India defeats South Africa in the finals of the inaugural champions challenge Hockey Tournament in Kualalumpur by -

a) 4-2

b) 2-0

c) 3-2

d) 2-1

- Which planets in the solar system are known as 'Inferior Planets' -

a) Earth and Mars

b) Earth and Mercury

c) Mars and Mercury

d) Mercury and Venus.

- The largest Stupa in Southern India is at -

a) Nellore

b) Amravati

c) Tanjore

d) Kozhikode

- The new chairman and Managing Director of Industrial Finance Corporation of India (IFCI) is -

a) Mr. Vishwanath Prasad Singh

b) Mr. Jitendra Patil

c) Mr. Ragh

d) Mr. Shubhash chand Jain

- Which one is the latest among rock-cut temples?

a) Ajanta

b) Ellora

c) Elephanta

d) All originated in the same period)

- Number of organisations government ban in Jammu and Kashmir and the North East under the new ordinance 'POTO' is -

a) 20

b) 21

c) 22

d) 23

- In bed of which river does Badrinath shrine stand?

a) Ganga

b) Mandakini

c) Alakananda

d) Bhagirathi

- The nerve endings for the sense of sight are located in the part of the eye called the -

a) Cornea

b) Sclera

c) Iris

d) Retina

- Fundamental duties were introduced in the constitution by the -

a) 40<sup>th</sup> Amendment

b) 42<sup>nd</sup> Amendment

c) 43<sup>rd</sup> Amendment

d) 44<sup>th</sup> Amendment

- The Khalsa Panth was founded by -

a) Guru Hargovind

b) Guru Nanak Dev

c) Guru Tegh Bahadur

d) Guru Govind singh

- Number of countries involved in international fleet review hosted by India is -

a) 27

b) 28

c) 29

- d) 30