

1. The early effect in a bipolar junction transistor is caused by

- A. fast turn-on
- B. fast turn-off
- C. large collector-base reverse bias
- D. large emitter-base forward bias

Answer: C

2. MOSFET can be used as a

- A. current controlled capacitor
- B. voltage controlled capacitor
- C. current controlled inductor
- D. voltage controlled inductors

Answer: B

3. Thermal runaway is not possible in FET because as the temperature of FET increases

- A. the mobility decreases
- B. the transconductance increases
- C. the drain current increases
- D. none of the above

Answer: A

4. A source follower using an FET usually has a voltage gain which is

- A. greater than +100
- B. slightly less than unity but positive
- C. exactly unity but negative
- D. about -10

Answer: A

5. A differential amplifier has a differential gain of 20,000 . CMRR=80 dB. The common mode

gain is given by

- A. 2
- B. 1
- C. 1/2
- D. 0

Answer: A

6. The approximate input impedance of the OPAMP circuit which has

$R_i=10k, R_f=100k, R_L=10k$

- A. ∞

B.120k

C.110k

D.10k

Answer: D

7. Which of the following can be used as a rotating amplifier in a control system?

1.Amplidyne

2.Separately excited dc generator

3.Synchro

4.Self excited dc generator

Select the answer from the following codes:

A. 3 and 4

B. 1 and 2

C. 1, 2 and 3

D. all

Answer: B

8. A lead compensator

A. speeds up the transient response

B. increases the stability margin

C. increases the stability margin and speeds up the transient-response.

D. none of the above.

Answer: C

9. The effect of adding poles and zeros can be determined quickly by

A. Nichols chart

B. Nyquist plot

C. Bode plot

D. Root locus

Answer: C

10. In force current analogue, mechanical mobility is analogous to

A. impedance Z

B. admittance Y

C. reactance X

D. conductance G

Answer: A

11. If any term in the first column of a Routh array becomes zero, then

A. Routh criterion cannot be used to determine stability

B. Routh criterion can be used by substituting a small positive number for zero and completing the array

C. Routh criterion can be used by substituting a big positive number for zero and completing the array

D. Routh criterion can be used by substituting a small negative number for zero and completing the array

Answer: B

12. A cordless telephone using separate frequencies for transmission in base and portable units is known as

A. duplex arrangement

B. half duplex arrangement

C. either (a) or (b)

D. neither (a) nor (b)

Answer: A

13. For attenuation of high frequencies we should use

A. shunt capacitance

B. series capacitance

C. inductance

D. resistance

Answer: A

14. A modem is classified as low speed if data rate handled is

- A. upto 100 bps
- B. upto 250 bps
- C. upto 400 bps
- D. upto 600 bps

Answer: D

15. VSB modulation is preferred in TV because

- A. it reduces the bandwidth requirement to half
- B. it avoids phase distortion at low frequencies
- C. it results in better reception
- D. none of the above

Answer: A

16. A woofer should be fed from the input through a

- A. low pass filter
- B. high pass filter
- C. band pass filter
- D. band stop filter

Answer: A

17. In which of the following base systems is 123 not a valid number?

A.Base 10

B.Base 16

C.Base 8

D.Base 3

Ans:D

18. Storage of 1 KB means the following number of bytes

A.1000

B.964

C.1024

D. 1064

Ans:C

19. What is the octal equivalent of the binary number:

10111101

A.675

B.275

C.572

D.573.

Ans:B

20. Pick out the CORRECT statement:

- A. In a positional number system, each symbol represents the same value irrespective of its position
- B. The highest symbol in a position number system as a value equal to the number of symbols in the system
- C. It is not always possible to find the exact binary
- D Each hexadecimal digit can be represented as a sequence of three binary symbols.

Ans:C

21.The binary code of $(21.125)_{10}$ is

- A.10101.001
- B.10100.001
- C.10101.010
- D.10100.111.

Ans:A

22. At room temperature the current in an intrinsic semiconductor is due to

- A. holes
- B. electrons
- C. ions
- D. holes and electrons

Answer: D

23. Work function is the maximum energy required by the fastest electron at 0 K to escape from the metal surface.

A. True

B. False

Answer: B

24. The most commonly used semiconductor material is

A. silicon

B. germanium

C. mixture of silicon and germanium

D. none of the above

Answer: A

25. In which of these is reverse recovery time nearly zero?

A. Zener diode

B. Tunnel diode

C. Schottky diode

D. PIN diode

Answer: C

26. A transistor has a current gain of 0.99 in the CB mode. Its current gain in the CC mode is

A. 100

B. 99

C. 1.01

D. 0.99

Answer: A

27. The minimum number of transistors required to implement a two input AND gate is

A. 2

B. 4

C. 6

D. 8

Answer: C

28. Using DeMorgan's Theorem we can convert any AND-OR structure into

A. NAND-NAND

B. OR-NAND

C. NAND-NOR

D. NOR-NAND

29. For a memory with a 16-bit address space, the address ability is

- A. 16 bits
- B. 8 bits
- C. 2^{16} bits
- D. Cannot be determined

Answer: D

30. Because we wish to allow each ASCII code to occupy one location in memory, most memories are _____ addressable.

- A. BYTE
- B. NIBBLE
- C. WORD (16 bits)
- D. DOUBLEWORD (32 bits)

Answer: A

31. Circuit A is a 1-bit adder; circuit B is a 1 bit multiplier.

- A. Circuit A has more gates than circuit B
- B. Circuit B has more gates than circuit A
- C. Circuit A has the same number of gates as circuit B

(Hint: Construct the truth table for the adder and the multiplier)

Answer: A

32. When the write enable input is not asserted, the gated D latch _____ its output.

A. can not change

B. clears

C. sets

D. complements

Answer: A

33. A structure that stores a number of bits taken “together as a unit” is a

A. gate

B. mux

C. decoder

D. register

Answer: D

34. We say that a set of gates is logically complete if we can build any circuit without using any other kind of gates. Which of the following sets are logically complete

A. set of {AND,OR}

B. set of {EXOR, NOT}

C. set of {AND,OR,NOT}

D. None of the above

Answer: C

35. At room temperature the current in an intrinsic semiconductor is due to

A. holes

B. electrons

C. ions

D. holes and electrons

Answer: D

36. Work function is the maximum energy required by the fastest electron at 0 K to escape from the metal surface.

A. True

B. False

Answer: B

37. The most commonly used semiconductor material is

A. silicon

B. germanium

C. mixture of silicon and germanium

D. none of the above

Answer: A

38. In which of these is reverse recovery time nearly zero?

- A. Zener diode
- B. Tunnel diode
- C. Schottky diode
- D. PIN diode

Answer: C

39. A transistor has a current gain of 0.99 in the CB mode. Its current gain in the CC mode is

- A. 100
- B. 99
- C. 1.01
- D. 0.99

Answer: A

40. The amount of photoelectric emission current depends on

- A. frequency of incident radiation
- B. intensity of incident radiation
- C. both frequency and intensity of incident radiation

D. none of the above

Answer: B

41. Assertion (A): A p-n junction has high resistance in reverse direction.

Reason (R): When a reverse bias is applied to p-n junction, the width of depletion layer increases.

A. Both A and R are true and R is correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

42. Voltage series feedback (Also called series-shunt feedback) results in

A. increase in both I/P and O/P impedances

B. decrease in both I/P and O/P impedances

C. increase in I/P impedance and decrease in O/P impedance

D. decrease in I/P impedance and increase in O/P impedance

Answer: C

43. How many free electrons does a p type semiconductor has?

A. only those produced by thermal energy

- B. only those produced by doping
- C. those produced by doping as well as thermal energy
- D. any of the above

Answer: A

44. A 10MHz CRO has

- A. 5MHz sweep
- B. 10MHz vertical oscillator
- C. 10MHz horizontal oscillator
- D. 10MHz supply frequency

ANSWER: C

45. Which of the following instruments can be used to measure AC current only?

- A. Permanent Magnet Type ammeter
- B. Induction type ammeter
- C. Moving iron voltmeter
- D. Moving iron ammeter

1. D only
2. B only
3. A, B, D

4. B and D only

ANSWER: 2

46. An oscilloscope indicates

A. Peak to peak value of voltage

B. DC value of voltage

C. RMS value

D. Average value

ANSWER: A

47. In a ballistic galvanometer, the deflecting torque is proportional to

A. the current through coil

B. square of current through coil

C. square-root of current through coil

D. sine of measured

ANSWER: A

48. The error of an instrument is normally given as a percentage of

A. measured value

B. full-scale value

C. mean value

D. rms value

ANSWER: B

49. If the instrument is to have a wide range, the instrument should have

A. Linear scale

B. Square-law scale

C. Exponential scale

D. Logarithmic scale

ANSWER: D

50. The resistance can be measured most accurately by

A. Voltmeter-ammeter method

B. bridge method

C. multimeter

D. Megger

ANSWER: B

51. The repeat accuracy of an instrument can be judged from its

A. static error

B. linearity error

C. dynamic error

D. standard deviation of error

ANSWER: D

52. Which of the following meters has a linear scale?

A. Thermocouple meter

B. Moving iron meter

C. Hot wire meter

D. Moving coil meter

ANSWER: D

53. No eddy current and hysteresis losses occur in

A. Electrostatic instruments

B. PMMC instruments

C. Moving iron instruments

D. Electrodynamo meter instruments

ANSWER: A

54. Two voltmeters have the same range 0-400V. The internal impedance are 30,000 Ohms and 20,000 Ohms. If they are connected in series and 600V be applied across them, the readings are

A. 360V and 240V

B. 300V each



C. 400V and 200V

D. one of the meters out of the range and other 100V

ANSWER: A