

ELECTRONICS

1. In a bridge-type full-wave rectifier, if V_m is the peak voltage across the secondary of the transformer, the maximum voltage coming across each reverse-biased diode is :
 - (a) V_m
 - (b) $2 V_m$
 - (c) $\frac{1}{2} V_m$
 - (d) $V_m / \sqrt{2}$
2. Which of the following is a unipolar device ?
 - (a) P-N junction diode
 - (b) Zener diode
 - (c) Tunnel diode
 - (d) Schottky diode
3. Lowest output resistance is obtained in :
 - (a) CB
 - (b) CE
 - (c) CC
 - (d) both (a) and (b)
4. In the case of BJT amplifier, bias stability is achieved by :
 - (a) keeping the base current constant
 - (b) keeping I_C and V_{CE} constant irrespective of the undesired changes in base current
 - (c) keeping the temperature constant
 - (d) keeping the temperature and base current constant
5. JFET has main drawback of :
 - (a) having low input impedance
 - (b) having high output impedance
 - (c) being noisy
 - (d) having small gain-bandwidth product

6. The most popular form of IC package is :
- (a) TO-5
 - (b) DIL
 - (c) Flat Pack
 - (d) All of the above
7. A network is said to be non-linear if it does not satisfy :
- (a) homogeneity condition
 - (b) superposition condition
 - (c) both (a) and (b)
 - (d) associative condition
8. The superposition theorem is applicable to :
- (a) linear, non-linear and time variant responses
 - (b) linear and non-linear resistors only
 - (c) linear responses only
 - (d) none of the above
9. Selectivities of different resonance circuits are compared in terms of their :
- (a) impedances
 - (b) reactances
 - (c) frequencies
 - (d) bandwidths
10. The dual of a loop is :
- (a) twig
 - (b) node
 - (c) mesh
 - (d) tree

11. A square wave with a period of $10 \mu\text{s}$ drives a T flip-flop. The period of the output signal will be :
- (a) $100 \mu\text{s}$
 - (b) $20 \mu\text{s}$
 - (c) $10 \mu\text{s}$
 - (d) $5 \mu\text{s}$
12. While is the fastest unsaturated logic gate has the excellent noise immunity.
- (a) ECL, TTL
 - (b) TTL, ECL
 - (c) ECL, HTL
 - (d) RTL, DTL
13. The ASCII is a 7-bit code for :
- (a) letters
 - (b) numbers
 - (c) other symbols
 - (d) all of the above
14. Odd parity of word can be conveniently tested by :
- (a) XOR gate
 - (b) OR gate
 - (c) XNOR gate
 - (d) NAND
15. A multiplexer is known as :
- (a) multivibrator
 - (b) data selector
 - (c) decoder
 - (d) seven segment display

16. For which of the following flip-flop the output is clearly defined for all considerations of two inputs ?
- (a) D
 - (b) RS
 - (c) JK
 - (d) T
17. A complete microcomputer system consists of :
- (a) microprocessor
 - (b) memory
 - (c) add-ons
 - (d) all of the above
18. The most common addressing techniques employed by a CPU is :
- (a) immediate
 - (b) direct
 - (c) indirect
 - (d) all of the above
19. Which of the following is the user programmed semiconductor memory ?
- (a) SRAM
 - (b) DRAM
 - (c) EPROM
 - (d) All of the above
20. For a memory system, the cycle time is :
- (a) same as the access time
 - (b) longer than the access time
 - (c) shorter than the access time
 - (d) none of the above

21. In C programming language, which of the following type of operators enjoys highest precedence :
- (a) relational operators
 - (b) equality operator
 - (c) logical operators
 - (d) arithmetic operators
22. The single character input/output functions are :
- (a) scanf () and printf ()
 - (b) getchar() and printf ()
 - (c) scanf () and putchar()
 - (d) getchar() and putchar()
23. The two statements that can be used to change the flow of control are :
- (a) if and switch
 - (b) if and while
 - (c) switch and do-while
 - (d) break and continue
24. The comma operator (,) is primarily used in conjunction with :
- (a) for statement
 - (b) if-else statement
 - (c) do-while statement
 - (d) all of the above
25. Arrays that do not have their dimensions explicitly specified are called :
- (a) unsized arrays
 - (b) undimensional arrays
 - (c) initialized arrays
 - (d) no size of arrays

26. C contains two special pointer operators :
- (a) * and &
 - (b) * and &&
 - (c) & and &&
 - (d) % and &
27. The feature that allows you to define new data types that are equivalent to existing data types is :
- (a) pointer
 - (b) typedef
 - (c) structure
 - (d) union
28. A union consists of a number of elements that :
- (a) all occupy the same space in memory
 - (b) must be structures
 - (c) are grouped next to each other in memory
 - (d) all have the same type
29. Which of the following is not a linked data structure ?
- (a) Linear linked list
 - (b) Circular linked list
 - (c) Linked list with multiple pointers
 - (d) None of the above
30. In linked lists with multiple pointers :
- (a) components are all linked together in some sequential manner
 - (b) there is no beginning and no end
 - (c) components are arranged hierarchically
 - (d) forward and backward transversal within the list is permitted

31. Which of the following parameters is used for distinguishing between a small signal and a large signal amplifier ?
- (a) Voltage gain
 - (b) Frequency response
 - (c) Harmonic distortion
 - (d) Input/output impedances
32. Class AB operation is often used in power amplifiers in order to :
- (a) get maximum efficiency
 - (b) remove even harmonics
 - (c) overcome crossover distortion
 - (d) reduce collector dissipation
33. A thyristor is a semiconductor switch which is :
- (a) unilateral and astable
 - (b) bilateral and astable
 - (c) unilateral and bistable
 - (d) bilateral and bistable
34. The crystal oscillator frequency is very stable due to :
- (a) rigidity of crystal
 - (b) size of crystal
 - (c) structure of crystal
 - (d) high Q of the crystal
35. The requirement of an oscillator using positive feedback amplifier as an oscillator, is that :
- (a) there must be positive feedback
 - (b) initially the value of loop gain AB must be greater than unity
 - (c) after the desired level is reached the loop gain AB must decrease to unity
 - (d) all of the above

36. UJT when used for triggering an SCR has waveform :
- (a) sine wave
 - (b) square wave
 - (c) saw tooth wave
 - (d) trapezoidal
37. Most of the linear ICs are based on the two transistor differential amplifier because of its :
- (a) input voltage dependent linear transfer characteristic
 - (b) high voltage gain
 - (c) high input resistance
 - (d) high CMRR
38. The type of multivibrator used for generation of clock pulses is :
- (a) monostable multivibrator
 - (b) astable multivibrator
 - (c) bistable multivibrator
 - (d) none of the above
39. The material used for the construction of LED is :
- (a) Si
 - (b) Ge
 - (c) GaAsP
 - (d) None of the above
40. Which of the following is *not* classified as a photoconductive device ?
- (a) a photovoltaic cell
 - (b) a PIN photodiode
 - (c) a phototransistor
 - (d) a light dependent resistor

41. Electronic voltmeter provides more accurate readings in high resistance circuits as compared to a non-electronic voltmeter because of :
- (a) high V/ohm ratings
 - (b) high ohm/V ratings
 - (c) low meter resistance
 - (d) high resolution
42. In a CRT the length l of the magnetic field in the initial direction of the electron beam when compared with the radius of curvature of that beam is :
- (a) very large
 - (b) very small
 - (c) equal
 - (d) negligibly small
43. The Miller sweep circuit normally used in a CRO is basically :
- (a) voltage to current converter circuit
 - (b) a current to voltage converter circuit
 - (c) an integrator circuit
 - (d) a differentiator
44. The disadvantage of Maxwell's bridge is that :
- (a) inductance measurement is frequency dependent
 - (b) it cannot be used to measure inductance for large values of Q
 - (c) both inductance and Q cannot be measured
 - (d) resistance of the inductor measurement is frequency dependent
45. What type of bridge is recommended for measuring resistances less than 1 ohm ?
- (a) Wheatstone bridge
 - (b) Schering bridge
 - (c) Maxwell bridge
 - (d) Kelvin bridge

46. A voltmeter has 100 divisions on 0-100 V range. One-tenth of each division can be read with certainty. The resolution of the meter is :
- (a) 0.1 V
 - (b) 0.01 V
 - (c) 1.0 V
 - (d) 1.01 V
47. The resistance of a strain gauge should be high :
- (a) to increase sensitivity
 - (b) to reduce hysteresis effects
 - (c) to swamp out the effects of variations of resistance in other parts of the bridge
 - (d) none of the above
48. Piezo electric transducers are :
- (a) active transducers
 - (b) passive transducers
 - (c) secondary transducers
 - (d) none of the above
49. The resolution of a digital ammeter with 3-digit display is :
- (a) $1/2$
 - (b) $1/3$
 - (c) $1/8$
 - (d) $1/4$
50. A set of independent current measurements were taken and recorded as follows 12.8 A, 12.2 A, 12.5 A, 13.1 A, 12.9 A and 12.4 A. The standard deviation is :
- (a) 0.283 A
 - (b) 0.300 A
 - (c) 0.399 A
 - (d) 0.414 A

51. In a 100% amplitude modulated signal, if the total transmitted power is P , then carrier power will be :
- (a) $\frac{2}{3} P$
 - (b) $\frac{1}{2} P$
 - (c) $\frac{1}{3} P$
 - (d) $\frac{1}{4} P$
52. In a narrow band FM system, the highest modulating frequency is f_m . The bandwidth of the system will be :
- (a) $6 f_m$
 - (b) f_m
 - (c) $2 f_m$
 - (d) $10 f_m$
53. In TV transmission, picture signal is amplitude modulated and sound signal is frequency modulated. This is done because :
- (a) it is not possible to frequency modulate the picture signal
 - (b) bandwidth requirement is minimised
 - (c) sound signal is more susceptible to noise than picture signal
 - (d) synchronisation of picture frames becomes easier
54. The most common detector used in an AM radio broadcast receiver is :
- (a) envelope detector
 - (b) coherent detector
 - (c) discriminator
 - (d) ratio detector
55. The main advantage of PCM system is :
- (a) lower bandwidth
 - (b) lower power
 - (c) lower noise
 - (d) none of the above

56. Pulse communication system that is inherently highly immune to noise is :
- (a) PAM
 - (b) PWM
 - (c) PPM
 - (d) PCM
57. Which of the following antenna gives circular polarization ?
- (a) Yagi-uda
 - (b) Parabolic
 - (c) Dipole
 - (d) Helical
58. The ground wave eventually disappears as one moves from transmitter because of :
- (a) surface attenuation
 - (b) diffraction
 - (c) loss of line of sight
 - (d) tilting
59. Which of the following statements is *not* valid for FM systems ?
- (a) It needs less bandwidth
 - (b) It offers better S/N ratio
 - (c) It requires less modulating power
 - (d) All of the above
60. In a TV which of the following stages has AGC bias ?
- (a) Mixer
 - (b) Local oscillator
 - (c) RF amplifier
 - (d) AFT discriminator