Important Questions

1. Draw the Symbol of following

   i)Zener Diode ii) Photodiode v) LED vi) PN Junction

2. Define α and β of transistor
3. List types of Rectifiers
4. Convert following

   $(25)_{10} = (?)_2 = (?)_{16}$

5. List any two specifications of IC- DAC 0808
6. Draw symbol and write truth table of D and T Flip Flop.
7. Write the radix of binary, octal, decimal and hexadecimal number system

8. Draw V-I characteristics of P-N junction diode and explain it.
9. Draw V-I characteristics of Zener diode and explain it.
10. Describe theconstruction & working principle of npn transistor with the help of diagram
11. Draw the symbol & write truth table of NOT, OR and AND & NAND gates
12. Describe the working of 4 bit SISO (serial in serial out)Shift Register with diagram and waveform
13. Draw and explain zener diode as a voltage regulator
14. Draw the circuit diagram of 4 bit R-2R ladder DAC and obtain its output voltage expression.
15. Compare CB, CE and CC configuration on the basis of :
16. (i)Input impedance (ii) Output impedance (iii) Current gain (iv) Application (v) voltage gain
17. Subtract the given number using 2's compliment method: (i) $(0101)_2 - (1001)_2$

   (ii) $(1110)_2 - (1001)_2$

18. Describe how transistor can be used as a switch and draw waveforms
19. Draw logic diagram of half adder circuit & write it's Truth table.
20. Draw the basic block diagram of regulated DC power supply. Explain the function of each block
21. Draw & explain the working of single slope ADC.
22. State and prove De Morgan's theorem.
23. Compare Hal wave &Centre tap & Bridge Full wave rectifier on the basis of,
    i. Maximum Efficiency
    ii. Ripple Factor
    iii. Output Frequency
    iv. Number of diodes used
    v. TUF
    vi. Necessity of Transformer
    vii. Ripple frequency
    viii. PIV rating
    ix. Output waveforms
    x. Applications
24. Draw circuit diagram of single stage RC coupled CE amplifier and describe with the help of input and output waveform
25. Draw circuit diagram of 3-bit synchronous counter and draw output waveform .
26. Draw I/P & O/P characteristics of CE configuration & show different regions on it.
27. Describe the working principle of successive approximation ADC
28. Draw & explain 8:1 Multiplexer using truth table .
    a. Write two applications of
    b. i)Zener Diode ii) Photodiode v) LED vi) PN Junction
29. Compare P-N junction diode and zener diode on the basis

30. Symbol (ii) Direction of conduction (iii)Reverse breakdown (iv) Application
31. Draw construction of LED and explain working principle
32. Describe the Operating Principle of photodiode with neat Sketch
33. State the material used for manufacturing following colour LED's-Infrared, Red ,yellow green.? State Application of LED
34. List four specifications of zener diode or P- N junction diode
35. Define following terms in case of PN junction diode: i) Static resistance vii) Dynamic resistance iii) Cut-in voltage iv) Breakdown voltage.
36. Define filter?State the need of filters..
37. State need of Regulated power supply.
38. Define the following terms with respect to rectifier :
    i) Ripple factor (ii) Rectification efficiency (η)
    ii) Transformer Utilization Factor (TUF) (iv) Peak Inverse Voltage (PIV)
39. Draw the neat sketch of center tap full wave rectifier. Draw i/p and o/p waveforms
40. Draw a circuit diagram of bridge rectifier. Draw its input-output waveforms and describe its operation.
41. Give the need of a filter. Draw the circuit diagram of π filter and state its working.
42. Draw the circuit diagram of Shunt capacitor filter and state its working
43. Draw the circuit diagram of LC filter and state its working.
44. State the typical values of PIV, TUF, ripple factor, efficiency of rectifier (Half & Full wave)
45. Draw the symbol of NPN & PNP transistor. .
46. List applications of transistor
47. List the type of transistor and draw their symbols.
48. Draw O / P characteristics of CE configuration and explain it
49. Derive the relationship between α and β of a transistor.
50. Draw circuit diagram of single stage RC coupled CE amplifier and explain the function of each component in it.
51. Draw the symbol, truth table and logic expression of any one universal logic gate. Write reason why it is called universal gate.
52. Realize the basic logic gates, NOT, OR and AND gates using NOR gates
53. only (Design basic logic gates using NAND and NOR gate) Draw the logical symbol & truth table of EX-OR and EX-NOR gate.
54.. Convert:
    (AD92.BCA)16= (?)10 = (?)8 = (?)2
55. Draw symbol and write the truth table of JK flip flop.
56. State the necessity of multiplexer.
57. Write excitation table of D flip flop
58. Describe function of full subtractor circuit with its truth table, and logic diagram
59. Design 1: 16 demultiplexer using 1: 4 demultiplexers
60. Describe the working of Master-Slave JK Flip-Flop with Truth Table and Logic diagram.
61. Design 3-bit Asynchronous counter and draw output waveform
62. Describe the function of Full Adder Circuit using its truth table, and logic diagram
63. Describe the working of JK flip-flop with its truth table and logic diagram
64. Draw 16:1 MUX tree using 4:1 MUX.
65. Compare between synchronous and asynchronous counter
66. Describe the operation of R-S flip-flop using NAND gates only
67. State the applications of shift register.
68. List the types of DAC
69. List the types of ADC
70. State two specification of DAC

71. List any two specifications of IC- ADC 0809

72. Describe the working of successive Approximation ADC. Define Resolution and conversion time associated with ADC

73. Calculate the analog output for 4 bit weighted register type DAC for inputs
    (i) 1011
    (ii) 1001Assume (Vfs) full scale range of voltage is 5V

74. Draw & explain the working of Dual slope ADC