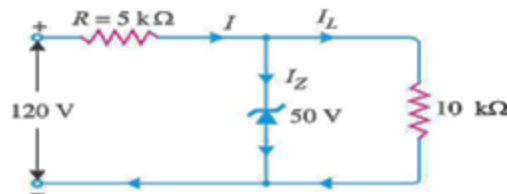


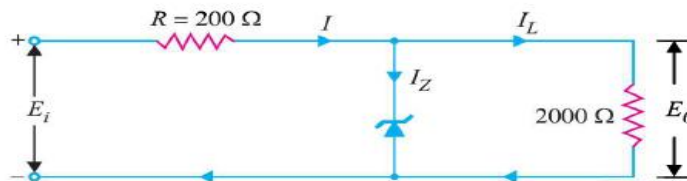
Shivaji University, Kolhapur
Question Bank for Mar 2022 (Summer) Examination

Subject Code: 71818 Subject Name: Fundamentals of Electronics and Computer
Chapter No. 1

1. Explain semiconductor diode with its characteristics and any one application.
2. Explain full wave bridge rectifier with necessary waveforms.
3. Explain FW rectifier using centre tap transformer with necessary waveform.
4. What is leakage current? Explain with CE configuration.
5. For CE configuration explain saturation, active and cut off region with I/p and O/p Characteristics.
6. Explain Zener as voltage regulator with suitable diagram.
7. Explain load line and operating point with suitable diagram.
8. For a transistor $I_B = 20\mu\text{A}$, $I_c = 2\text{ mA}$ and $\beta = 40$ calculate I_{CBO} .
9. A crystal diode having internal resistance $r_f = 20\ \Omega$ is used for half wave rectification. If the applied voltage $v=50\sin\omega t$ and load resistance $R_L=800\ \Omega$, Find. i) d.c. output voltage ii) a.c. power input and d.c. power output iii) efficiency of rectification.
10. In the centre tap rectifier circuit, center tapped transformer has primary to secondary windings turns ratio as 5:1. Input 230 V R.M.S. has been provided to primary of the transformer, the diodes are assumed to be ideal Find i) d.c. output voltage ii) peak inverse voltage iii) rectification efficiency
11. For the zener circuit shown in below figure find
 i) the output voltage ii) the voltage drop across series resistance iii) current through zener diode



12. Over what range of input voltage will the zener circuit shown in below figure maintain 30 V across $2000\ \Omega$ load, assume that series resistance $R = 200\ \Omega$ and zener current rating is 25 mA



13. Explain transistor as a common emitter amplifier with suitable circuit diagram and waveforms.
14. Compare Half wave rectifier and centre tap Full wave rectifier in detail.
15. Explain the following terms with respect to diode
 i) Break down voltage ii) Knee voltage
 iii) Peak inverse voltage iv) Maximum power rating

Chapter No. 2

1. Explain basic gates and NAND as universal gate with its truth table.
2. Explain de Morgan's theorem with truth table.
3. What is multiplexer? Explain 4:1 mux with truth table.
4. Explain different Boolean laws.
5. Explain 1:4 Demux with truth table.
6. Explain full adder circuit with truth table.
7. Explain basic gates and NOR as universal gate with its truth table.
8. What is De- Multiplexer? Explain 1:8 Demux with truth table.
9. What is multiplexer? Explain 8:1 mux with truth table.
10. Compare different logic families.
11. What is Binary adder? Explain Half adder with suitable truth table and logic diagram.
12. Draw the combinational circuit using the basic gates to obtain the following output
 $Y=AB + BC + A'B'$
13. Prove the following distributive law with the help of truth table. $A(B+C) =AB+AC$
14. Explain De-Morgan's Law with truth table and neat logic diagram.
15. Realize the logic equation $Y=(A+B) (C+D)$ using i) OR and AND gate ii) only NOR gate

Chapter No. 3

1. Compare active and passive transducers and also explain primary and secondary transducer with an example.
2. Explain different types of strain gauges.
3. Write short note on displacement (LVDT) transducer.
4. With range, specification and limitations explain strain gauge transducer.
5. Write a short note on a) Microwave oven b) Tachometer.
6. Write a short note on a) Weighing machine b) Digital Thermometer.
7. Explain washing machine with block diagram.
8. Explain temperature transducer. What is RTD transducer?
9. Explain in details thermistor transducer with an application.
10. Explain speed transducer (shaft Encoder) with advantage and disadvantage.
11. Explain principle of operation and working of LVDT with neat diagram and transfer characteristics.
12. Explain electronic weighing machine with proper block diagram and advantages, disadvantages and application.
13. State Principal of operation of microwave oven and explain it's working with neat block diagram.
14. Explain working of washing machine with neat diagram.
15. What is transducer? Explain different types of transducers.

Chapter No. 4

1. Discuss the different generations of computers.
2. Give the classification of computers based on their speed.
3. With neat schematic diagram, explain computer architecture.
4. With a neat labelled diagram, Explain different components of Computer.
5. Enlist and elaborate various input devices of computer system.
6. Enlist and elaborate various output devices of computer system.
7. Explain storage unit of computer system.
8. Enlist and elaborate any six applications of computers.
9. Explain classification of computer.

10. Explain with block diagram CPU of computer system.
11. What are different hardware components of computer system. Explain any four of them.
12. Explain the basic block diagram of a computer.

Chapter No. 5

1. Convert number system.
 - i) 11101.0110 binary to Decimal ii) 432 Hexadecimal to octal iii) 174 Decimal to Octal
2. Convert number system
 - i) 111101.0110 Binary to Decimal ii) 4B27 Hexadecimal to Decimal iii) 185 Decimal to Binary
3. Convert following number system
 - i) $(1101001.011)_2$ to Decimal ii) $(657.40625)_{10}$ to Binary iii) $(74B7.C1)_{16}$ to Decimal
4. Convert following number system
 - i) CF8E Hexdecimal to Binary ii) B2F8 Hex to Octal iii) 99 Decimal to Hex
5. Convert following number system
 - i) (111111.1111) binary to decimal ii) (EFA1.12) Hexdecimal to Octal iii) (674325) decimal to hexadecimal
6. Explain following Linux commands. i) Ls ii) mkdir iii) Cat iv) rmdir v) cd
7. Explain different types of system software.
8. What is system software? Explain any one in detail.
9. Explain the characteristics and application of word processor.
10. Explain the characteristics and application of word spreadsheet.
11. Explain the characteristics and application of word presentation.
12. Explain different types of operating system.
13. Explain different functions of operating system.
14. Write short note on i) compiler ii) Assembler iii) Interpreter
15. Explain different coding schemes. (ASCII, Unicode)

Chapter No. 6

1. Define algorithm? Write an algorithm, to read marks of five subjects out of 50 marks. Calculate average a percentage.
2. What is a flow chart? Draw a flowchart to read “n” numbers and add them.
3. With neat schematic diagram, explain program development life cycle.
4. List the different symbols used in flowchart and explain one example of flowchart.
5. Explain algorithm with one example?
6. Explain Programming Control Structures for computer programming.
7. Explain different types of networks.
8. With neat diagram, briefly Explain OSI reference model?
9. What are different types of networks? Explain any one in brief.
10. With neat diagram, briefly Explain TCP/IP reference model?
11. Explain different Network Topologies use in computer network.
12. Explain difference between TCP/IP and OSI.
13. What is a flow chart? Draw a flowchart for find the largest among three different numbers entered by the user.
14. Define algorithm? Write an algorithm, find the largest among three different numbers.
15. Write use of algorithm and flowchart? Write an algorithm for Addition of two numbers entered by the user.