Question Bank

B.Sc. III YEAR Electronics, Semester – VI Practical

Paper – VII ::   8051 Microcontroller and applications

Experiments using 8051 microcontroller:

1. Write a program to multiply two numbers using MUL command (later using counter method for repeated addition).

2. Write a program to divide two numbers using DIV command (later using counter method for repeated subtraction).

3. Write a program to pick out the largest/smallest number among a given set of numbers.
4. Write a program to arrange the given numbers in ascending/descending order.
5. Generate a specific time delay using timer/counter.
6. Interface ADC and a temperature sensor to measure temperature.

7. Interface DAC and generate a staircase wave form with a step duration and number of steps as variables.
8.
9. Flash a LED connected at a specified out port terminal.
10. Interface stepper motor to rotate clock wise / anti clock wise through a given angle steps.

Experiments with Keil Soft ware:

1. Write a program to pick out largest/smallest number among a given set of number.
2. Write a program to arrange a given set of numbers in ascending/descending order.
3. Write a program to generate a rectangular/square wave form at specified port.
4. Write a program to generate a time delay using timer registers.

Paper – VIII – A : DIGITAL COMMUNICATION Lab

I Experiments in Internetworking:

1) Testing of RJ-45 Cable (Straight/ Cross)
2) Introduction to LAN cable and Hub.
3) Verifying physical and logical address.
4) Sending data/ Data transfer from system to system.
5) Concept of HTTP.
6) File transfer FTP.
7) Introduction to server and client.
8) Introduction to network IP address.
9) Identification of NET ID using masks.
10) Mail transfer using SMTP.
11) Encryption (plain text to Hypertext).
12) Study of Router configuration.
13) Study of two networks between LAN and LAN/ MAN and MAN/ WAN and WAN.
14) Introduction to network devices.
15) Static Routing.
16) Basic RIP (observe RIP routers and understand the commands)
17) RIP V2.

18) OSPF (Open Shortest Path First)

II Experiments in Data

Communication.

1) Study of serial communication.
2) Study of protocol in communications.
3) Study of Fiber optic communications.
4) Study of wireless communications.
5) Study of parallel communication.

Question Bank

B.Sc. III YEAR, VI-Semester –Practical Paper

VIII B:: Digital System Design Using VHDL

VHDL – Program entry, simulation and Implementation (CPLD / FPGA) using appropriate HDL Software for the following circuits.

1. All types of logic gates (Data flow).

2. Half Adder (Data Flow, Structural and Schematic).

3. Full Adder (Data Flow, structural and Schematic).

4. Half Subtractor (Data Flow, Structural and Schematic).

5. Full Subtractor (Data Flow, Structural and Schematic).

6. Two control input Mux. Using case.

7. Two control input Mux. Using conditional signal assignment.

8. Two control input Mux. Using selected signal assignment.

9. Two control input Demux. Using case.

10. BCD to seven segment decoder.

11. Modeling a RSFF with assertion, report and different levels of severity (Behavioural).

12. Modeling a BCD counter (Top level behavioural)

13. Writing a test bench for a Half adder.

14. Writing a test bench for a Full adder.

Question Bank

VI SEMESTER Practicals

Paper – VIII_A : Basic Electronics

1. Verify the truth tables of AND, OR, NOT, gates

2. Construct and verify truth tables of AND, OR, NOT gates using universal

3. Verify truth tables of NAND and NOR gates.

4. Draw the characteristics of a transistor in CE configuration

5. Calculate the bandwidth of R.C. coupled amplifier.

6. Verify De Morgan's Theorem.

7. Draw the V-I characteristics of Zener diode.

8. Verify Thevenin's theorem.

9. Verify Maximum Power Transfer theorem

10. Draw the V-I characteristics of P-n junction diode.

11. Verify Zener diode as a voltage regulator

12. Construt a model D.C. power supply.

13. Determinate the output frequency R C phase shift Oscillator.

Paper – VIII-B : Physics of Semiconductor Devices

1.   Draw the characteristics of a Transistor in CE configuration

2.   Draw the V-I characteristics of Zener diode.

3.   Draw the V-I characteristics of P-n junction diode V- I characteristics.

4.   Verify Zener diode as a voltage regulator

5.   Determine the carrier concentration using Hall effect

6.   Determine the characteristics of a Thermistor

7.   Determine the Efficiency of a LED

8.   Determine the fill factor and efficiency of Solar cell.

9.   Draw the characteristics of FET

10.   Draw the characteristics of SCR

11.   Draw the characteristics of UJT

1. Determine the Planck's constant using black body radiation and photo-detector

2. Draw the characteristic curves for photo current versus intensity and wavelength of light and maximum energy of photo-electrons versus frequency of light using photo-electric effect.

3. Determine the Planck's constant using LEDs of at least 4 different colors.

4. Determine the ionization potential of mercury.

5. Determine the absorption lines in the rotational spectrum of Iodine vapour.

6. Determine the value of e/m by (a) Magnetic focusing or (b) Bar magnet.

7. Determine the charge of an electron using the Millikan oil drop apparatus and.

8. Draw the I-V characteristics of a tunnel diode.

9. Determine the wavelength of laser source using diffraction of single slit.

10. Determine the wavelength of laser source using diffraction of double slits.

11. Determine (1) wavelength and (2) angular spread of He-Ne laser using plane diffraction grating

12. Determine the value of e/m for electron by long solenoid method.

13. Determination of Planck's constant using Photo Cell.

14. Verify the inverse square law of radiation using a photo-electric cell.

15. Find the value of photo electric work function of a material of the cathode using a photo-electric cell.

16. Measurement of magnetic field – Hall probe method.

17. Determine the dead time of a given G.M. tube using double source.

18. Determination of Rydberg's constant of Hydrogen spectrum

19. Determine the energy gap of intrinsic semi-conductor.

20. Determine the Absorption coefficients of a material G. M. Counter.

21. Draw the plateau curve for a Geiger Muller counter.

22. Determine the half-life period of a given radioactive substance using a G.M. Counter.