PGIVS - 1549 A - 16
M.Sc. IVth Semester (CBCS) Degree Examination
Electronics & Instrumentation
(Personal Computer for Measurement and Control)
Paper : HCT 4.1

Time : 3 Hours   Maximum Marks : 80

Instructions to candidate :   1.   Answer the Questions as per the instructions

2.   Write Question numbers clearly and neatly

PART - A

1.   Answer EIGHT questions of the following   (8×2=16)

a)   Draw the block diagram of a computer

b)   Name any two I/P and O/P devices of PC

c)   Differentiate between ISA and EISA

d)   What is an interrupt? What is the address of type - O interrupt?

e)   Mention the features of DIOT card

f)   Name I/O port address decoding techniques.

g)   List out MATLAB windows

h)   Name the arithematic operations in MATLAB

i)   Mention the advantages of GUI

j)   What is simulink. Give its applications

PART - B

Answer any FOUR questions of the following   (4×7=28)

2.   Describe the organization of PC with block diagram.

3.   With a neat diagram describe the switch select I/O port address decoding technique.

4.   Explain the interfacing of 8255 with PC

5. Explain the display formats of MATLAB

6. Explain the simulation of PID based DC motor speed control system using simulink.

7. Discuss the interfacing of stepper motor with PC through its parallel port.

PART - C

Answer any THREE Questions of the following $(3 \times 12 = 36)$

8. With the help of diagram, describe the features of mother board of PC

9. Describe the interfacing of ADC with PC through DIOT card. Write necessary CLP

10. Explain MATLAB - GUI based AC motor speed control system.

11. With neat diagram, describe design and operation of PC based level control system.

12. Write short note on any TWO $(2 \times 6 = 12)$

    a) Floppy disk controller

    b) USB port

    c) Built in functions in MATLAB

    d) Role of PC in Instrumentation

PGIVS - 1551 A - 16
M.Sc. IVth Semester (CBCS) Degree Examination
Electronics and Instrumentation
(Biomedical Electronics)
Paper : SCT 4.1

Time : 3 Hours   Maximum Marks : 80

Instructions to candidates :

Answer the questions as per the Instructions

PART - A

1. Answer any **EIGHT** questions.   (8×2=16)

    a)   Mention the types of Biopotential electrodes

    b)   Define Resting and Action potentials.

    c)   What is the normal heart rate and normal blood pressure of a human being?

    d)   Draw the waveform for ECG

    e)   What is the role of pacemaker in heart?

    f)   Draw a typical neuron and name the parts.

    g)   Draw the 10-20 EEG electrode configuration

    h)   Mention the uses of Biotelemetry system.

    i)   What is LASER?

    j)   Give the advantages of X - Ray Machine

PART - B

Answer any **FOUR** questions of the following   (4×7=28)

2. Briefly discuss various types of Bioelectric signals.

3. Explain Cardio vascular system.

4. Briefly explain Respiratory system.

5. Discuss the organization of Brain.

6. With a block diagram, explain X - Ray machine

7. Discuss the applications of C.T scanning in Biomedical field.

PART - C

Answer any **THREE** Questions.   (3×12=36)

8. With a block diagram explain Man Instrumentation system.

9. With a neat diagram explain the working of heart and generations of ECG.

10. Explain implantable telimentry system.

11. What is LASER? Mention its types Discuss their applications in Biomedical field.

12. Write short notes on any TWO.   (2×6=12)

    i)   Biopotential Amplifiers

    ii)   Respirometer

    iii)   EEG

    iv)   Hemodialysis machine

PGIVS 1550 A-16
M.Sc. IVth Semester (CBCS) Degree Examination
Electronics and Instrumentation
(Scientific/Analytical Instrumentation)
Paper : HCT 4.2

Time : 3 Hours   Maximum Marks : 80

Instructions to Candidates :

1) Answer the questions as per the instructions

2) Write question numbers clearly

Section - A

1. Answer any **Eight** of the following $(8 \times 2 = 16)$

    a) Define Beer-Lambert law. Write its equation.

    b) Mention any two desirable features of radiation sources.

    c) What are the differences between colorimeter and spectrophotometer.

    d) Define P^H of a solution. Give its standard scale.

    e) Mention any two applications of polarograph.

    f) What is the principle of PAS?

    g) What is chemical shift?

    h) What is hyperfine splitting?

    i) Define Dynamic thermogravimetry

    j) Mention any two detectors used in Gas-Chromatography.

Section - B

Answer any Four of the following

$(4 \times 7 = 28)$

2. With a block diagram, explain the working of colorimeter.

3. Explain the working of P^H meter.

4. Explain the principle of NMR with energy diagrams.

5. Explain spin-spin coupling with examples.

6. With block diagram explain the working of DTA.

7. Discuss briefly various monochromators used in uv-visible spectrometer.

Section - C

Answer any three of the following $(3 \times 12 = 36)$

8. With the neat sketch. Explain the principle and instrumentation involved in AAS.

9. With the help of neat diagram explain the principle and working of polarograph.

10. Explain the principle and instrumentation involved in ESR Spectrometer.

11. Discuss the operation of scanning Electron Microscope with neat diagram.

12. Write short notes on any **two** $(2 \times 6 = 12)$

    a) Raman Spectrometer

    b) Conductivity meter

    c) Photoacoustic Spectrometer

    d) HPLC