

PGIVS 1550 A-18
M.Sc. IVth Semester Examination
ELECTRONICS AND INSTRUMENTATION
(Scientific/Analytical Instrumentation) (CBCS)
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 - A1. Answer any **EIGHT** of the following questions**(8×2=16)**

- a) Define Beer-Lambert's Law. Express it through mathematical equation.
- b) Mention any two salient features of detectors.
- c) Calculate the wavelength of radiation, if its energy is 0.1 eV.
- d) Mention any four features of Glass electrodes.
- e) Define conductance and specific conductance of a solution.
- f) Define Halfwave potential.
- g) What is the principle of mass spectrometers?
- h) Mention any four applications of NMR.
- i) Name the different parts of gas chromatograph.
- j) Draw the block diagram of thermal analyzer instrument.

SECTION - BAnswer any **FOUR** of the following questions :**(4×7=28)**

2. With neat diagram, explain working of colorimeter.
3. With neat sketch, explain working of conductivity meter.
4. Discuss the working of polarograph.
5. Explain principle and working of ESR.

6. Discuss the applications of PAS.
7. With block diagram explain working of SEM.

SECTION - C

Answer any three of the following questions.

(3×12=36)

8. With neat diagram, explain working and instrumentation. Involved in UV-visible spectrometer.
9. With neat schematic, explain principle and working of μc based pH meter.
10. With neat diagram explain the principle and Instrumentation involved in NMR. Mention any four applications.
11. With block diagram, explain the principle and instrumentation. Involved in DTA. Mention the salient features of individual blocks.
12. Write short note on any TWO **(2×6=12)**
 - a) Raman Spectrometer. **(6)**
 - b) PAS. **(6)**
 - c) Mass spectrometer. **(6)**
 - d) HPLC. **(6)**

PGIVS 1551 A-18
M.Sc. IVth Semester Examination
ELECTRONICS AND INSTRUMENTATION
(Bio-Medical Instrumentation)
Paper : SCT-4.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Answer the questions as per the instructions.
2. Write the question numbers clearly.

PART-A

1. Answer any **EIGHT** questions **(8×2=16)**
- a) What is Bio-Electrical signal?
 - b) Define action potential
 - c) What are the natural pacemakers?
 - d) Write expansion for ECG
 - e) What is meant by fibrillation?
 - f) Mention the role of myelin sheath.
 - g) Define telemetry.
 - h) Mention X-ray radiation spectrum range.
 - i) Define "TOMOGRAPHY".
 - j) Expand term "LASER".

PART - B

- Answer any **FOUR** questions of the following **(4×7=28)**
2. Explain in detail on Bio-Medical Instrumentation Systems.
 3. Give the classification and salient features Bio potential electrodes.
 4. Explain the working of sphygmo-monometer.
 5. Explain briefly pulmonary analyzer.

6. Explain in detail on NEURAL communication phenomenon.
7. Describe briefly on Biological effects of Ultra Sound.

PART - C

Answer any **THREE** questions.

(3×12=36)

8. Write an essay on Bio potential amplifier.
9. Explain in detail the working of ECG with neat diagram.
10. Discuss in detail on Respiratory gas analyzers.
11. Explain the working of NMR imaging systems and its applications.

12. Write short notes on any **TWO**

(2×6=12)

- a) Refractory period. **(6)**
 - b) Defibrillator. **(6)**
 - c) EEG **(6)**
 - d) Electro ophthalmoscope. **(6)**
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[Total No. of Pages : 2

PGIVS 1549 A-18
M.Sc. IVth Semester Examination
ELECTRONICS AND INSTRUMENTATION
(Personal Computer for Measurement and Control) (CBCS)
Paper : HCT-4.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Answer the questions as per instruments.
2. Write question number clearly.

Part - A

(8×2=16)

1. Answer any **eight** of the following
 - a) Sketch a neat block diagram of a computer
 - b) Mention the salient features of IBM PC.
 - c) Mention the main difference between ISA and EISA.
 - d) Give the comparison of serial and parallel port.
 - e) List the features of DIOT card.
 - f) List the advantages of optical disk data storage.
 - g) List out the MATLAB windows.
 - h) What is stepper motor? Give two applications.
 - i) Mention the advantages of GUI.
 - j) Define Plot. Name various Plot available in MATLAB

Part - B

(4×7=28)

Answer any **four** questions

2. What a neat diagram explain the working of CRT.
3. Explain the mechanism of switch select FIO port address decoding technique.
4. Explain the interfacing of 8255 with PC.
5. Discuss the procedure of interfacing of ADC to PC through DIOT card.

6. Discuss the simulation of PID based DC motor speed control system using simulink.
7. How memory (RAM) is interfaced to PC? Explain.

Part - C

Answer any **three** of the following **(3×12=36)**

8. With the help of a neat block diagram. Explain the features of mother board of PC.
9. With a neat block diagram explain AD-DA card for IBM PC.
10. Explain MATLAB-GUI based AC motor speed control system.
11. Describe the operation of PC based level control system.
12. Write short note on any two **(2×6=12)**
 - a) Floppy disk controller.
 - b) Interrupts and their response.
 - c) Built in functions of MATLAB
 - d) Spectrophotometer.

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