

PG (CBCS) EVEN SEMESTER EXAMINATION, 2023

PHYSICS

2nd Semester

Course No. : PHYCC - 204 B

(Instrumentation)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer five questions, taking one from each unit)

UNIT - I

1. (a) Discuss the static characteristics of an instrument. 7
- (b) State and prove Thevenin's Network Theorem. 7
2. (a) Draw the basic block diagram of an instrument and explain them. 8
- (b) Write short note on : 3+3=6
(i) Dynamic characteristics (ii) Errors

(Turn Over)

(2)

UNIT - II

3. (a) What are transducers? Classify them according to electrical principles involved. 2+8=10
- (b) How can you use thermocouple as a transducer to measure temperature. 4
4. (a) Discuss the working of an opto electronic transducer. Give two examples. 4+2=6
- (b) Write short note on : 4+4=8
- (i) Capacitive transducer
- (ii) Piezo electric transducer

UNIT - III

5. Discuss the working of a CRO. What do you mean by swap circuit. 10+4=14
6. (a) What is a potentiometer? What is its working principle? 3+3=6
- (b) Write short note on : 4+4=8
- (i) Loading effect (ii) Ohmmeter

UNIT - IV

7. (a) Explain the working of UV-visible spectrophotometer with proper diagram. 10

(3)

- (b) What is the use of a second monochromator in the photoluminescence set up. 4
8. (a) Explain the working of a FTIR. How does it differ from normal IR. 7+2=9
- (b) Discuss the working of a SEM. 5

UNIT - V

9. (a) Discuss the working of a diffusion pump with proper diagram. 8
- (b) Explain the working of a rotary pump. 6
10. (a) Explain the working of a pirani gauge. 8
- (b) Write short note on : 3+3=6
- (i) Leak detection (ii) Cryo pump
