

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2022
(Third Semester)

Branch – APPLIED ELECTRONICS

DISCIPLINE SPECIFIC ELECTIVE – I
INSTRUMENTATION & CONTROL SYSTEM

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 All the parameters such as voltage, current, resistance are measured using ----.
(i) digital frequency meter (ii) digital phase meter
(iii) digital multimeter (iv) DSO
- 2 Choose the instrument which response to stress or strain.
(i) LVDT (ii) load cell
(iii) piezo electric (iv) strain gauge
- 3 Match the system which has feedback to improve the performance.
(i) openloop (ii) close loop
(iii) signal flow graph (iv) block diagram
- 4 Find the signal whose value changes from one level to another level A in zero time.
(i) ramp (ii) parabolic
(iii) step (iv) impulse
- 5 Identify the suitable controller, in which the forward path error eliminates the steady state velocity as the error increases the system order it becomes instability.
(i) PID (ii) PI
(iii) P (iv) ID

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Analyze the static characteristics of instruments.
OR
b State various types of errors.
- 7 a Discuss how you will select a transducer.
OR
b Explain the function of a load cell.
- 8 a Compare the open and close loop system with an example.
OR
b Illustrate the signal flow graph with suitable example.
- 9 a Justify the standard test signals.
OR
b Evaluate the steady state error.
- 10 a Describe the concept of stability.
OR
b Illustrate the principles of PI controller.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Assess the features of Digital Multimeter.
OR
b Describe the working of a function generator.
- 12 a Elucidate the operation of a resistive transducer.
OR
b Interpret the LVDT performance.
- 13 a Differentiate the differential equation and transfer function of an electrical system.
OR
b Explain the block diagram algebra and reduction concept.
- 14 a Describe the step input analysis of first order system.
OR
b State the design specification of second order system.
- 15 a State and Explain Routh Hurwitz criterion.
OR
b Explain the performance of Lag-Lead compensator.

Z-Z-Z

END