18ELP18A

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Third Semester)

Branch – **APPLIED ELECTRONICS**

DISCIPLINE SPECIFIC ELECTIVE – I:
INSTRUMENTATION AND 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 Name the device which is specially designed for frequency measurement ----
(i) digital frequency meter (ii) digital phase meter
(iii) digital multimeter (iv) DSO

2 The displacement measurement transducer is basically a
(i) resistive (ii) capacitive
(iii) inductive (iv) LVDT

3 Which traversal of connected branches in the direction of the branch arrows such that no node is traversed more than once?
(i) loop (ii) node
(iii) path (iv) branch

4 Which of the following determine the system performance ?
(i) signal flow graph (ii) steady state error
(iii) masons formula (iv) first order system

5 Which of the following is representation of transfer function in logarithmic plot which consists two graphs
(i) inverse polar plot (ii) polar plot
(iii) root locus (iv) bode plot

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Analyze the dynamic characteristics of an instruments.
OR
b State the features of Digital capacitance meter.

7 a What is Electrical transducer?
OR
b Explain the function of strain gauge.

8 a State the Mason's gain formula with suitable example.
OR
b Define the feedback and non-feedback system.

Cont...

9 a What is standard test signals?

OR

b Define steady state error.

10 a Describe the concept of Routh Hurwitz criterion.

OR

b Explain the principles of PD controller.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Assess the function of DSO.

OR

b Describe the working principle of digital frequency meter.

12 a Describe the characteristic features and application of inductive transducer.

OR

b How does the piezo electric transducer works?

13 a Define the differential equation and transfer function of an electrical system.

OR

b Compare the open and closed loop systems with an aid of a block diagram.

14 a Describe the step input analysis of second order system.

OR

b What are the effect of adding a zero to a system?

15 a How does PID controller Work?

OR

b Explain root locus method.

Z-Z-Z END