

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION DECEMBER 2017
(Fifth Semester)**

Branch - ELECTRONICS

CORE ELECTIVE -1 ROBOTICS & AUTOMATION

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 2 = 20)

- 1 Define trajectory.
- 2 Write the classification of coordinate system in main frame.
- 3 State the uses of hydraulic motor.
- 4 What are the two equations require to define the behaviour of a dc servomotor?
- 5 What is passive infrared sensors?
- 6 What is segmentation?
- 7 State the classification of mechanical gripper.
- 8 Write the advantages of magnetic gripper in robotic application.
- 9 What is non synchronous transfer?
- 10 Mention the advantages of spray coating.

SECTION - B 125 Marks!

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

- 11 a Write about resolution, Accuracy and Repetability.
OR
b Discuss briefly about cylindrical coordinate robots.
- 12 a Explain about the principle of DC servomotors.
OR
b Describe, how the electro hydraulic servo valve controls the flow of the high - pressure oil to the hydraulic motor.
- 13 a Discuss about the tactile array sensors.
OR
b Write about feature extractions.
- 14 a Discuss about the vacuum cup type of grippers.
OR
b Explain the power and signal transmission of end effector.
- 15 a Discuss about manipulator path control.
OR
b Explain the head changing application of robots.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Explain about the point - to - point robotic system with a neat sketch.
- 17 Explain in detail about the control loop using voltage amplifier.
- 18 In detail discuss the tactile sensors.
- 19 Explain about magnetic and adhesive grippers.