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10MT72

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019

Robotics and Machine Vision System

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Explain briefly about types of Robots. (10 Marks)
b. Explain types of joints in Robots. (10 Marks)
- 2 a. Explain about SCARA manipulator. (10 Marks)
b. Explain PUMA 560 manipulator. (10 Marks)
- 3 a. Explain differential motions of a frame in Robot. (10 Marks)
b. Explain briefly about singularity in force domain. (10 Marks)
- 4 Explain equation of motion using Lagrangian and its formulation. (20 Marks)

PART – B

- 5 a. Explain about third order polynomial trajectory planning. (10 Marks)
b. Explain about Cartesian straight line and Circular motion planning. (10 Marks)
- 6 a. Explain about feedback control of single link manipulator. (10 Marks)
b. Explain Force control of single mass. (10 Marks)
- 7 Explain briefly about Hydraulic Actuator and its working. (20 Marks)
- 8 a. Explain briefly about LVDT. (10 Marks)
b. Explain : i) Tactile Sensor ii) Proximity Sensor. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.