Reg. No. : | | | | | | | | | | |

Question Paper Code: 31786

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Elective

Mechanical Engineering

01UME924 - ROBOTICS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define the degree of freedom.
2. Define the term work envelope.
3. List the kind of sensors used in robotics.
4. Give the industrial applications of vision-controlled robotic system.
5. Identify the parameters of a link and joints for kinematic modeling.
6. Define forward and inverse kinematics of a manipulator.
7. Name the robot programming methods.
8. Name any four MOTION commands in Robot programming language.
9. Describe pay back method to develop a robot with profit.
10. Define grippers.

PART - B (5 x 16 = 80 Marks)

11. (a) Give all possible classification of robots. (16)

Or

(b) Describe the anatomy of a robot. (16)

12. (a) Classify robot based on drive technology and list its advantages and disadvantages. (16)

Or

(b) Explain about the different types of grippers also classify grippers. (16)

13. (a) Give situation where robot will require noncontact sensors. Identify suitable noncontact sensors for these applications and explain their working. (16)

Or

(b) Explain the architecture of a robotic vision system. (16)

14. (a) Discover the type of joints used in robots, its degree of freedom and symbolic representation. (16)

Or

(b) Classify robot programming languages and also explain any five most interesting programming language. (16)

15. (a) Explain the applications of robots in industries. (16)

Or

(b) Prepare a plan for the safety of workers, programmers, maintenance engineers, casual observers and other humans outside the assumed danger zone. (16)

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