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**Question Paper Code: 39724**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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 some examples of Robot End Effectors.
5. Identify the parameters of a link and joints for kinematic modeling.
6. What is segmentation?
7. Name the robot programming methods.
8. Define degrees of freedom.
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 various types of Gripper mechanisms. (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 Machine vision systems of Robot. (16)

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

Or

(b) With an example differentiate forward and inverse kinematics. (16)

15. (a) Briefly explain the economic analysis of Robots in detail. (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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