Total No. of Questions : 8]

SEAT No. :

PE2705

[Total No. of Pages : 2

[6583]-255

T.E. (Robotics and Automation)

INDUSTRIAL ROBOTICS AND MATERIAL HANDLING SYSTEMS

(2019 Pattern) (Semester - V) (311505(A)-III) (Elective-I)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of electronic pocket Calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Describe briefly the various types of motion controls possible in robots. **[9]**

b) Explain in brief Robot centered cell used in manufacturing industries. **[9]**

OR

Q2) a) List and explain the general considerations in Robotic material handling. **[9]**

b) Explain in detail CNC machine tool loading. **[9]**

Q3) a) Show the following grippers with the help of a diagram: **[8]**

i) Two finger gripper

ii) Internal and external gripper

iii) Angular and parallel gripper

b) Write a short note on active and passive grippers. **[9]**

OR

Q4) a) List and Explain different types of end effectors used in robots and their applications. **[9]**

b) The data for the pneumatic gripper is as given below.

Given: d = 35 mm, s = 80 mm, Gripper force 700 N, n = 50 rpm. Determine the motor power required in HP. **[8]**

P.T.O.

Q5) a) Explain Material handling Robots used in warehouse. **[8]**

b) Explain in detail Robotic vision systems. **[9]**

OR

Q6) a) Explain continuous arc welding Robots used in Automobile industry. **[8]**

b) Explain Robots used in Die Casting. **[9]**

Q7) Write a short note on: **[18]**

a) Lee's Algorithm for obstacle avoidance.

b) Underwater applications Robots.

OR

Q8) Write a short note on: **[18]**

a) Medical applications.

b) Interfacing Robots with computers.

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