Total No. of Questions : 4]

SEAT No. : ____

P5150

[Total No. of Pages : 1

[6187]-560
T.E. (Electronics & Telecommunication) (Insem)
HONORS IN ROBOTICS
Principles of Robotics
(2019 Pattern) (Semester-I) (304181 HR)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4.***
2) ***Neat diagrams should be drawn wherever necessary.***
3) ***Use of Non-Programmable calculator is allowed.***
4) ***Assume suitable data if necessary.***

Q1) a) Classify Robots based on the classification by configuration. Explain SCARA Robot configuration. **[2+4=6]**

b) State 3 Asimov's Laws of Robotics. **[3]**

c) State and explain DOF's of Robots associated with Arm, Body and Wrist. **[2+4=6]**

OR

Q2) a) Sketch and explain types of Robot joints. **[5]**

b) Define and explain resolution, accuracy and precision of Robot. **[4]**

c) Sketch and explain Anatomy of Robot Also state various components of Robots. **[6]**

Q3) a) Classify Robotic drives based on the actuators. **[4]**

b) Define Pneumatic drives. Classify Pneumatic drives based on functioning of cylinder and applications type. Draw and explain Linear actuator. **[1+2+3=6]**

c) Give brief explanation of any 1. **[5]**

i) DC servomotor

ii) Stepper Motor

OR

Q4) a) Compare Hydraulic, Pneumatic & electric actuators with reference to their relative merits & demerits. **[5]**

b) Sketch and explain Brushless DC motor state its advantages & disadvantages. **[5]**

c) Sketch and explain planetary gearbox use in Robots. **[5]**

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