Total No. of Questions : 8]

SEAT No. : [ ]

PB-4017

[Total No. of Pages : 2

[6262]-370
T.E. (Robotics)
Principles of Robotics (Honors)
(2019 Pattern) (Semester - I) (304181 HR)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Assume suitable data if necessary.***
3) ***Draw neat sketches wherever necessary.***

Q1) a) Explain working principle & advantages of vacuum guippers. **[6]**

b) State the characteristics of guippers. **[6]**

c) Explain with neat sketch tactile sensor guipper. **[6]**

OR

Q2) a) Explain working & principle of Magnetic guipper. **[6]**

b) Classify grippers based on various criterias. **[6]**

c) State and explain various tools as end effectors. **[6]**

Q3) a) Classify sensors based on working principle. **[6]**

b) Explain working & construction of capacitive sensor. **[5]**

c) Sketch & explain LVDT. **[6]**

OR

Q4) a) Explain working principle & construction of optical proximity sensors. **[6]**

b) Classify sensors based on working principle. **[5]**

c) Explain with neat sketch force sensors. **[6]**

P.T.O.

Q5) a) Enlist steps in Forward Kinematic Analysis. **[9]**

b) Explain with neat sketch D-H parameter. **[9]**

OR

Q6) a) State properties of generalised composit matrix. **[9]**

b) A 2 DOF planar RR manipulator has L1 = 120mm & L2 = 75mm. Determine joint angles using geometric approach, so that few end is located at (100,70) **[9]**

Q7) a) Explain functional safety application is Robotics. **[9]**

b) Explain various levels of Image processings. **[8]**

OR

Q8) a) Explain various applications of Robotics in Industry. **[8]**

b) Write short note on following. (Any 2) **[9]**

i) Pick & place robots.

ii) Home Automation.

iii) Hospital & patient care.

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