Total No. of Questions : 8]

SEAT No. : [ ]

PB-4031

[Total No. of Pages : 2

[6262]-385

T.E. (E & TC) (Honors)

ROBOTICS

Robot Programming & Simulation

(2019 Pattern) (Semester - II) (304183HR)

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

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain motion control, hand control, program control commands used in robotic programming with example **[6]**

b) Explain any three basic commands in VAL-II with example. **[6]**

c) Briefly explain the Production rate calculations used for robot in detail **[6]**

OR

Q2) a) Explain WAIT, SIGNAL and DELAY commands used in robotics for communications using simple application. **[6]**

b) With schematic diagram, explain the robotic applications in welding industry. **[6]**

c) W. r. t. VAL-II programming language explain simple pick and place application. **[6]**

Q3) a) Explain manual and automatic mode of operation of industrial robot. **[6]**

b) List and explain Program control statements in AML. **[6]**

c) With suitable example explain different constants and variables used in AML Language of robot **[6]**

OR

P.T.O.

Q4) a) Which syntax move master command language uses? List and explain different types of commands. **[6]**

b) Describe the elements and functions used in AML robotic language. **[6]**

c) Describe the different Motion & Sensor commands of AML language of robot. **[6]**

Q5) a) Write short note on Virtual robotics. **[5]**

b) Discuss how Collision detection works in robotics. **[6]**

c) Discuss in detail about Robot studio online software. **[6]**

OR

Q6) a) What is soft robotics? Discuss robotic process automation in detail. **[6]**

b) Describe following terms **[5]**

i) Repeatability measurement

ii) Robot economics

c) Explain how multiple robot systems are handled. **[6]**

Q7) a) Explain Distributed lag models in details. **[5]**

b) Describe Analog and Hybrid simulation. **[6]**

c) Describe Monte Carlo simulation method. **[6]**

OR

Q8) a) Classify simulation software and Describe a general purpose simulation package. **[6]**

b) Compare simulation packages with programming languages. **[5]**

c) Discuss advantages and disadvantages of simulation. **[6]**

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