Total No. of Questions : 8]

SEAT No. : [ ]

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B.E. (E&TC) (Honors) (Robotics)
INDUSTRIAL ROBOTICS & AUTOMATION
(2019 Pattern) (Semester-VII) (404181 HR)

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

Instructions to the candidates:

1) ***Attempt Q.no.1 or Q.No.2, Q.No.3 or Q.No.4 Q.No.5 or QNo.6, Q.No.7 orQ.No.8.***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data, if necessary.***
4) ***Neat diagrams must be drawn wherever necessary.***

Q1) a) Explain General approach to control system design of pneumatic control. **[6]**

b) Explain schematic layout and travel step diagram of Pneumatic Control. **[6]**

c) Explain Karnaugh -Veitch mapping. **[6]**

OR

Q2) a) Draw symbols and drawings, schematic layout of pneumatic control. **[6]**

b) Explain in detail constructional features, types of cylinders. **[6]**

c) Explain in detail filter, lubricator and regulator. **[6]**

Q3) a) Explain Special design features of CNC systems. **[6]**

b) Explain General rules for product design for automation. **[6]**

c) Explain condition monitoring of manufacturing systems. **[5]**

OR

Q4) a) Drive system for CNC machine tools. **[6]**

b) Design of parts for high speed feeding and orienting, **[6]**

c) Write a note on CIM **[5]**

P.T.O.

Q5) a) Design of Mechatronics Systems. **[6]**

b) Give possible design solutions. **[6]**

c) Case study of engine management system. **[6]**

OR

Q6) a) Challenges in engine management system. **[6]**

b) Case study of pick and place robot. **[6]**

c) Stages in design of Mechatronics systems. **[6]**

Q7) a) Explain types and construction of Pumps and motors. **[6]**

b) Power pack-elements of Hydraulic system design. **[6]**

c) Selection criteria for cylinder's valves, pipes. **[5]**

OR

Q8) a) Draw construction and explain types, operation of PLC. **[6]**

b) Explain types operation, application of Servo and proportional valves. **[6]**

c) Short note on ladder diagram. **[5]**