FirstRanker.com
Firstranker's choice
www.FirstRanker.com
www.FirstRanker.com

R13

Code: 13A03607

B.Tech III Year II Semester (R13) Regular & Supplementary Examinations May/June 2017
MECHATRONICS
(Mechanical Engineering)

Time: 3 hours
Max. Marks: 70

PART – A
(Compulsory Question)
*****

1   Answer the following: (10 X 02 = 20 Marks)
        Explain the following:
   (a) Real time operating systems.
   (b) Simulation.
   (c) Resistors.
   (d) Filters.
   (e) Pneumatic actuation systems.
   (f) Drive selection.
   (g) MOSFETs.
   (h) Solenoids.
   (i) Digital interfacing.
   (j) Timers.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2   What is stand alone control system and PC based control system? Discuss their advantages in robotics.
OR
3   What is meant by graphical user interface and discuss its applications in robot and CNC machine?

UNIT – II

4   What is an A/D converter? Explain how the process of analog to digital conversion takes place.
OR
5   Explain the differential amplifier and how this amplifier is connected to thermocouple to give temperature output.

UNIT – III

6   Explain hydraulic and mechanical actuation system and state their merits and demerits.
OR
7   What is meant by ball screw and ball nut? Name the thread profiles used in ball screw and nut.

UNIT – IV

8   Explain the following:
   (a) Opto coupling.
   (b) Circuit breakers.
   (c) Bipolar transistors.
OR
9   What is permanent magnet DC motor? How they are classified? Explain the principle of a permanent magnet DC motor.

UNIT – V

10   Explain with a block diagram, the architecture of a 8-bit microprocessor in general.
OR
11   Explain with a block diagram, the architecture of a programmable logic controller.