CBCS SCHEME

USN | | | | | | | | | |

18RA56

Fifth Semester B.Tech. Degree Examination, Jan./Feb. 2023
Mechatronics

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a. Define Mechatronics. List the advantages and disadvantages of Mechatronics. **(04 Marks)**
    b. With neat sketch explain closed loop control system with example. **(08 Marks)**
    c. Explain with a neat block diagram the working of Engine Management System. **(08 Marks)**

OR

2   a. With neat sketch explain Pneumatic sensors. **(08 Marks)**
    b. Write a short note on:
       i) Proximity switch   ii) Tactile sensor **(12 Marks)**

Module-2

3   a. Sketch and explain the working principle of Hydraulic system. **(10 Marks)**
    b. Sketch and explain Hydraulic Rotary Actuators. **(10 Marks)**

OR

4   a. Sketch and explain Gear Trains. **(10 Marks)**
    b. Sketch and explain Open and Cross belt drive. **(10 Marks)**

Module-3

5   a. Sketch and explain A.C Motors i.e., Single Phase Squirrel cage induction motor. **(10 Marks)**
    b. With neat sketch explain Stepper motor. **(10 Marks)**

OR

6   a. With block diagram explain Watch dog timer. **(10 Marks)**
    b. Explain Fault finding techniques. **(10 Marks)**

Module-4

7   a. With block diagram explain interfacing relays. **(10 Marks)**
    b. Explain methodology for stepper motor control design. **(10 Marks)**

OR

8   a. Sketch and explain life curve. **(10 Marks)**
    b. Explain the steps involved in Response Surface Modelling. **(10 Marks)**

Module-5

9   a. Write a short note on :
       (i) Validation methodology   (ii) Validation scheme **(10 Marks)**
    b. With neat sketch explain Fusion technique. **(10 Marks)**

OR

10 a. With neat sketch explain Autonomous guided vehicle. **(10 Marks)**
    b. Explain different parts of robot controller. **(10 Marks)**

* * * * *