1757

Code : 15EE63A

VI Semester Diploma Examination, April/May-2018

MECHATRONICS

Time : 3 Hours]   **[Max. Marks : 100**

Note :   (i)   Answer any **six** questions from Part – **A**. Each question carries 5 marks.

         (ii)   Answer any **seven** questions from Part – **B**. Each question carries **10** marks.

PART – A

1. Define the term "Mechatronics" and mention two examples.   **5**

2. Draw the diagram of Linear motion potentiometer.   **5**

3. List the advantages and disadvantages of piezoelectric transducers.   **5**

4. Explain the working of eddy current proximity sensor with diagram.   **5**

5. Define signal conditioning and its necessity.   **2 + 3 = 5**

6. Explain working of laser printer with diagram.   **5**

7. Explain the working of current to pressure converted with diagram.   **5**

8. List the advantages and disadvantages of robotics.   **5**

9. Explain working of humidity sensor with diagram.   **5**

PART – B

10. (a) Explain the function of elements of measurement system with example.   3 + 3 = 6
     (b) Describe gain schedule control system with block diagram.   2 + 2 = 4

11. (a) Explain the working of linear variable differential transformer with diagram.
                                                                                 3 + 3 = 6
     (b) Explain the concept of hydraulic load cell with diagram.   2 + 2 = 4

12. (a) List the factor to be consider for selection of sensor for particular application.
                                                                                 2 + 3 = 5
     (b) Explain the working of digital optical encoder with diagram.   2 + 3 = 5

13. (a) Explain the process adopted in signal conditioning.   7
     (b) List the advantages of signal conditioning.   3

14. (a) Explain the concept of data acquisition system with block diagram.   3 + 3 = 6
     (b) Explain the working of R-2R ladder DAC with diagram.   2 + 2 = 4

15. (a) Explain the working of ultraviolet (UV) recorder with diagram.   2 + 3 = 5
     (b) Explain the concept of compound gear train with diagram.   2 + 3 = 5

16. (a) Explain the working of solenoid with diagram.   2 + 3 = 5
     (b) Explain the working of spool valve with diagram.   2 + 3 = 5

17. (a) Explain the working of microprocessor based robotic system with block
          diagram.   2 + 3 = 5
     (b) Explain the working of automatic camera with block diagram.   2 + 3 = 5

18. (a) List the advantages of robotics.   2 + 2 = 4
     (b) Draw the ladder diagram for the following :   3 × 2 = 6
          (i)   AND
          (ii)   OR
          (iii) NAND

19. (a) Draw general block diagram of MEMS and explain the function of each block.
                                                                                 3 + 3 = 6
     (b) List the applications of MEMS.   4