1317

Code : 15EE63A

Register Number | | | | | | | | | | |

VI Semester Diploma Examination, Nov./Dec.-2018

MECHATRONICS

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

Note : (i) Answer any **6** questions from Part – A. Each question carries **5** marks.
(ii) Answer any **7** questions from Part – B. Each question carries **10** marks.

PART – A

1. Draw the block diagram of components of mechatronic system. Briefly explain the function of each block. **2 + 3 = 5**

2. List the factors to be considered for selection of transducer. **5**

3. Draw the diagram of optical type encoder. Briefly explain the working. **2 + 3 = 5**

4. Briefly explain the process adopted in signal conditioning. **5**

5. Define kinematic link or element. Briefly explain types of links. **5**

6. Draw the block diagram of basic components of a microprocessor based robotic system. **5**

7. Draw the general block diagram of MEMS. Briefly explain the function of each block. **2 + 3 = 5**

8. Define PLC. State the advantages of PLC. **1 + 4 = 5**

9. Explain the concept of signal conditioning. State its necessity. **1 + 4 = 5**

PART – B

10. (a) Explain the functions of signal condition equipment. **5**

    (b) Explain with a neat sketch working of successive approximation type analog to Digital Converter (ADC). **2 + 3 = 5**

11. Explain with a neat sketch construction and working of linear variable differential transformer (LVDT). **2 + 4 + 4 = 10**

12. Explain with a neat sketch construction and working of piezo-electric accelerometer. **2 + 4 + 4 = 10**

13. (a) List the types of strain gauges. **2**

    (b) Explain the following : **8**

    (i) X-Y recorder

    (ii) UV recorder

14. (a) Draw the block diagram of automatic camera (Microprocessor based). Label various blocks. **5**

    (b) Explain briefly manufacturing of MEMS. **5**

15. (a) Draw the block diagram of automatic washing machine (Microprocessor based). Label the blocks. **5**

    (b) With a neat sketch briefly explain the working of current to pressure converter. **2 + 3 = 5**

16. With a neat schematic diagram, explain the construction and working of spool valve. **2 + 4 + 4 = 10**

17. (a) Draw the block diagram of components of hydraulic system. Briefly explain the function of each component. **3 + 3 = 6**

    (b) List the applications of stepper motor. **4**

18. (a) Define solenoid. Draw the schematic diagram of plunger and non-plunger type solenoid. **1 + 2 + 2 = 5**

    (b) Explain working of R – 2R ladder DAC with neat diagram. **5**

19. (a) Draw the block diagram of elements of measurement system. Briefly explain function of each block. **2 + 3 = 5**

    (b) Sketch and explain briefly the working of photoelectric tachometer. **2 + 3 = 5**