

Roll No.....

Total No. of Printed Pages: [1]

Total No. of Questions: [09]

B. Tech. (Mech. Engg.) (Semester – 6th)

MECHATRONIC SYSTEMS

Subject Code: BMECD1621

Paper ID: 18112333

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) Differentiate between sensor & transducer
- b) Name any two types of Accumulators
- c) What is the difference between microprocessor & micro controller?
- d) Enlist and discuss in brief the key elements of mechatronics system.
- e) What is the use of Adapter.
- f) What do you understand by term Amplification? Enlist types of amplifiers.
- g) What do you understand by Darlington Pair?
- h) Why LATCH circuits are used in PLC?
- i) State the application of mechanical system model.
- j) What is Jump control?

Section – B

(5 marks each)

Q2. Explain the hydraulic accusation system in detail.

Q3. Explain the role of Shift Resistor with suitable examples.

Q4. What is Karnaugh Map. Explain its significance.

Q5. Explain the need of signal conditioning and its process in detail.

Q6. What is LVDT. Discuss its construction & working for measurements of physical parameters.

Section – C

(10 marks each)

Q7. Explain the following in detail with neat sketches:

- (a) Data Acquisition
- (b) PLC's

Q8. Define mechanical actuation in detail.

Q9. Explain the following in detail with neat sketches:

- (a) Ladder Circuit
- (b) Stepper Motor