

Total No. of Questions :6 ]

SEAT No. :

**P8591**

**Oct-22/TE/Insem -576**

[Total No. of Pages :2

**T.E. (Mechanical /Mechanical Sandwich )**

**MECHATRONICS**

**(2019 Pattern) (Semester-I) (302044)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6.*
- 2) *Figures to the right side indicate full marks.*
- 3) *Use Graph Paper for Graphical Solution.*
- 4) *Use of electronic pocket Calculator is allowed.*
- 5) *Assume suitable data, if necessary.*

- Q1)** a) Using a suitable diagram, explain the working of an electromagnetic type flow sensor. **[5]**
- b) What is MEMS Accelerometer? Explain with sketch. How can it be used in Mobile phones as a compass or Gyroscope? **[5]**

OR

- Q2)** a) Draw a suitable diagram and explain the working of strain gauge for force measurement. **[5]**
- b) How Optical pyrometer works? Explain with sketch. State some applications of its. **[5]**
- Q3)** a) List and define any five static measurement characteristics. **[5]**
- b) How can you distinguish between Parallel and Serial communication? **[5]**

OR

- Q4)** a) What is use Electrocardiography? How it works? How much these sensores are reliable from human life point of view? **[5]**
- b) Draw a suitable circuit diagram and explain the working of a sample and hold circuit. **[5]**

**P.T.O.**

- Q5)** a) Draw a suitable flowchart and explain the working of a 4-bit successive approximation register type ADC. [5]
- b) How Digital Video Broadcasting of Flood conditions in Konkan Area can be done? Explain with schematic layout. [5]

OR

- Q6)** a) Explain the importance of the DAQ system in Mechatronics. Explain your answer with the help of suitable example. [5]
- b) A 4 bit R-2R type DAC is supplied with 2.56 volts DC reference potential. Determine the full scale output potential and the least significant bit(LSB). [5]

