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Total Number of Pages : 01

B.Tech.
PCME4403

7th Semester Back Examination 2018-19
MECHANICAL MEASUREMENT CONTROL
BRANCH : MECH
Time : 3 Hours
Max Marks : 70
Q.CODE : E531

Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

- Q1** Answer the following questions : (2 x 10)
- a) Define sensitivity in measuring system.
 - b) What are functions carried out at signal conditioning stage?
 - c) Difference between active and passive transducers and give example of it.
 - d) What is strain rosette?
 - e) State the laws of thermocouple.
 - f) What is acceleration error coefficient?
 - g) What do you mean by Poles and zeros of control system?
 - h) What is the range of diaphragm pressure gage?
 - i) What is phase margin?
 - j) What are the thermocouple materials used?
- Q2**
- a) Explain the working principle of CRO with function of each part. (5)
 - b) Describe the working principle of piezoelectric transducers with examples. (5)
- Q3**
- a) Describe the working principle of Pirani gauge. (5)
 - b) Derive the expression for gauge factor of metallic strain gauge. (5)
- Q4**
- a) What is meant by variable-area meter? Describe its working principle. (5)
 - b) Explain the Linear Variable Differential Transducer (5)
- Q5**
- a) Explain the optical pyrometer and its constructional features. (5)
 - b) Difference between Seebeck and Peltier effect (5)
- Q6**
- a) Difference between open-loop and closed-loop control system giving two examples. Discuss their merits and demerits. (5)
 - b) What is meant by order of a control system? Explain with physical examples. (5)
- Q7** What is Nyquist stability criterion? Explain its utility for determining stability of a control system with an example. (10)
- Q8** Write short answer on any TWO : (5 x 2)
- a) Stroboscope
 - b) Photo conductive transducers.
 - c) Operational Amplifier
 - d) Temperature compensation in strain gauge.