Code No: RR220305 **RR** **Set No. 2**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTATION AND CONTROL SYSTEMS
Common to Mechanical Engineering, Production Engineering, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Discuss briefly on the reliability of measurement systems. Explain how reliability improvement can be achieved.
   (b) "A pricise instrument need not be accurate" explain. [8+8]
2. (a) Describe the construction and working of a D.C. tachometer generator. Explain its advantages and disadvantages.
   (b) Explain the construction and working of a Flyball Tachometer. Discuss its merits and demerits. [8+8]
3. (a) What is a thermistor? Write different types.
   (b) What is the range of operation of thermistors? State its applications. [8+8]
4. (a) Explain the principle of a hydrometer.
   (b) What is a vibrometer? Explain any one of them. [8+8]
5. (a) What is the need for temperature compensation in a strain gauge? How it is done.
   (b) Drive an equation for gauge factor for a metallic strain gauge. [8+8]
6. (a) List out the advantages and limitations of direct method of level measurement.
   (b) Describe with neat sketch the functioning of any two types of displacer type liquid level measuring instruments. [8+8]
7. (a) Explain the operation of ordinary traffic signal. Why is the system called open loop? How can traffic be controlled more efficiently?
   (b) An ordinary floor furnace with manual control is an open loop control system. State the disadvantages of the open loop system. How may this be made an automatic closed loop system? Explain with the help of a block diagram. [8+8]
8. (a) Describe different sources of errors in U-tube manometer and how corrections can be applied to minimize these errors.
   (b) Explain how sensitivity can be increased by using inclined tube manometer. Describe its construction, advantages and limitations. [8+8]

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Code No: RR220305 **RR** **Set No. 4**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTATION AND CONTROL SYSTEMS
Common to Mechanical Engineering, Production Engineering, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is the need for temperature compensation in a strain gauge? How it is done.
   (b) Drive an equation for gauge factor for a metallic strain gauge. [8+8]
2. (a) Explain the operation of ordinary traffic signal. Why is the system called open loop? How can traffic be controlled more efficiently?
   (b) An ordinary floor furnace with manual control is an open loop control system. State the disadvantages of the open loop system. How may this be made an automatic closed loop system? Explain with the help of a block diagram. [8+8]
3. (a) Explain the principle of a hydrometer.
   (b) What is a vibrometer? Explain any one of them. [8+8]
4. (a) List out the advantages and limitations of direct method of level measurement.
   (b) Describe with neat sketch the functioning of any two types of displacer type liquid level measuring instruments. [8+8]
5. (a) Discuss briefly on the reliability of measurement systems. Explain how reliability improvement can be achieved.
   (b) "A pricise instrument need not be accurate" explain. [8+8]
6. (a) Describe different sources of errors in U-tube manometer and how corrections can be applied to minimize these errors.
   (b) Explain how sensitivity can be increased by using inclined tube manometer. Describe its construction, advantages and limitations. [8+8]
7. (a) What is a thermistor? Write different types.
   (b) What is the range of operation of thermistors? State its applications. [8+8]
8. (a) Describe the construction and working of a D.C. tachometer generator. Explain its advantages and disadvantages.
   (b) Explain the construction and working of a Flyball Tachometer. Discuss its merits and demerits. [8+8]

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Code No: RR220305 **RR** **Set No. 1**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTATION AND CONTROL SYSTEMS
Common to Mechanical Engineering, Production Engineering, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is the need for temperature compensation in a strain gauge? How it is done.
   (b) Drive an equation for gauge factor for a metallic strain gauge. [8+8]
2. (a) Explain the principle of a hydrometer.
   (b) What is a vibrometer? Explain any one of them. [8+8]
3. (a) Explain the operation of ordinary traffic signal. Why is the system called open loop? How can traffic be controlled more efficiently?
   (b) An ordinary floor furnace with manual control is an open loop control system. State the disadvantages of the open loop system. How may this be made an automatic closed loop system? Explain with the help of a block diagram. [8+8]
4. (a) Describe different sources of errors in U-tube manometer and how corrections can be applied to minimize these errors.
   (b) Explain how sensitivity can be increased by using inclined tube manometer. Describe its construction, advantages and limitations. [8+8]
5. (a) What is a thermistor? Write different types.
   (b) What is the range of operation of thermistors? State its applications. [8+8]
6. (a) Describe the construction and working of a D.C. tachometer generator. Explain its advantages and disadvantages.
   (b) Explain the construction and working of a Flyball Tachometer. Discuss its merits and demerits. [16]
7. (a) List out the advantages and limitations of direct method of level measurement.
   (b) Describe with neat sketch the functioning of any two types of displacer type liquid level measuring instruments. [8+8]
8. (a) Discuss briefly on the reliability of measurement systems. Explain how reliability improvement can be achieved.
   (b) "A pricise instrument need not be accurate" explain. [8+8]

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Code No: RR220305 **RR** **Set No. 3**

II B.Tech II Semester Examinations,December 2010
INSTRUMENTATION AND CONTROL SYSTEMS
Common to Mechanical Engineering, Production Engineering, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Describe the construction and working of a D.C. tachometer generator. Explain its advantages and disadvantages.
   (b) Explain the construction and working of a Flyball Tachometer. Discuss its merits and demerits. [8+8]
2. (a) Explain the operation of ordinary traffic signal. Why is the system called open loop? How can traffic be controlled more efficiently?
   (b) An ordinary floor furnace with manual control is an open loop control system. State the disadvantages of the open loop system. How may this be made an automatic closed loop system? Explain with the help of a block diagram. [8+8]
3. (a) Explain the principle of a hydrometer.
   (b) What is a vibrometer? Explain any one of them. [8+8]
4. (a) Discuss briefly on the reliability of measurement systems. Explain how reliability improvement can be achieved.
   (b) "A pricise instrument need not be accurate" explain. [8+8]
5. (a) What is a thermistor? Write different types.
   (b) What is the range of operation of thermistors? State its applications. [8+8]
6. (a) List out the advantages and limitations of direct method of level measurement.
   (b) Describe with neat sketch the functioning of any two types of displacer type liquid level measuring instruments. [8+8]
7. (a) Describe different sources of errors in U-tube manometer and how corrections can be applied to minimize these errors.
   (b) Explain how sensitivity can be increased by using inclined tube manometer. Describe its construction, advantages and limitations. [8+8]
8. (a) What is the need for temperature compensation in a strain gauge? How it is done.
   (b) Drive an equation for gauge factor for a metallic strain gauge. [8+8]

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