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**ME-503 (GS)****B.E. V Semester**

Examination, December 2017

**Grading System (GS)****Mechanical Measurement and Control***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
 ii) All questions carry equal marks.

1. a) Describe the significance of measurement.  
 b) Explain the following terms:
  - i) Static error
  - ii) Static correction
  - iii) Relative error
  - iv) Percentage relative error
2. Derive the expression for magnitude and phase of a first order system when subjected to a sinusoidal input signal. Draw the magnitude and phase versus frequency plots.
3. Explain the factors which should be considered while selecting an instrument for a specific measurement application.
4. Explain briefly the following temp measuring instruments
  - a) Liquid in glass thermometer
  - b) Bimetallic thermometer

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5. a) How are pressure measuring instruments classified?  
 b) List the advantages and disadvantages of manometer.
6. Explain the working of venturimeter with the help of neat diagram. List its advantages and disadvantages.
7. a) What are the requirement of a strain gauge.  
 b) Explain unbonded strain gauges.
8. a) What is a control system? What are its elements.  
 b) Explain an open loop control system.

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