

M. Tech. Structural Engineering & Construction (CBCS Pattern) Semester-I  
**PSES151 / 1(A) - Structural Instrumentation & Material Science**

P. Pages : 1

Time : Three Hours



**GUG/W/24/10966**

Max. Marks : 70

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- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Illustrate your answers wherever necessary with the help of neat sketches.
  5. Solve **any five**.

1. a) Describe the working principle, construction and application of proximity sensor. 7  
b) Explain Active transducer and passive transducer enlist type of each. 7
2. a) What is gauge factor? Derive the expression for gauge factor in term of Poisson ratio. 7  
b) How is the temperature compensation carried out using strain gauge in bridge circuit. 7
3. a) Explain in detail steel fiber reinforced concrete and its advantages. 7  
b) Explain in detail fiber reinforce plastic and its advantages. 7
4. a) Explain Schmidt rebound hammer test to assess the strength of concrete. 7  
b) Explain pull out test on concrete. 7
5. a) Explain various method for controlling corrosion in steel reinforcement. 7  
b) Explain the advantages of using material admixtures in concrete. 7
6. a) Write short note on high strength concrete and ready mixed concrete. 7  
b) Discuss the applicability of No-fines concrete as a pavement application and non pavement application 7

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