

M. Tech. Structural Engineering & Construction (CBCS Pattern) Sem-I  
**PSES1(A) / PSES151 - Structural Instrumentation & Material Science**

P. Pages : 1

Time : Three Hours



**GUG/W/22/10966**

Max. Marks : 70

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Note : 1. Solve **any five** questions.

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| <b>1.</b> | a) | Describe the working principle, construction and application of Proximity sensors.   | <b>7</b> |
|           | b) | Explain Active transducer and Passive transducer. Enlist types of each.  | <b>7</b> |
| <b>2.</b> | a) | What is piezzo resistive transducer? Define gauge factor. Derive an expression of the gauge factor for strain gauge in terms of Poisson's ratio. | <b>7</b> |
|           | b) | Explain construction and working principle of LVDT. Explain how it will detect displacement.   | <b>7</b> |
| <b>3.</b> | a) | Explain in detail steel Fiber reinforced concrete and its advantages.  | <b>7</b> |
|           | b) | Explain in detail Fiber reinforced plastic and its advantages.   | <b>7</b> |
| <b>4.</b> | a) | Explain Schmidt's rebound hammer test to assess the strength of concrete.  | <b>7</b> |
|           | b) | Explain the pull-out test on concrete.   | <b>7</b> |
| <b>5.</b> | a) | What is carbonation of concrete? Explain the factors affecting carbonation of concrete.  | <b>7</b> |
|           | b) | Explain about the durability of concrete in sea water.   | <b>7</b> |
| <b>6.</b> | a) | Explain in detail light weight concrete its used.  | <b>7</b> |
|           | b) | Explain underwater concrete and sprayed concrete.  | <b>7</b> |

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