Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14CE3008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **EXPERIMENTAL TECHNIQUES AND INSTRUMENTATION** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Brief the working principle of i. Pressductor ii. Hydraulic load cell with neat sketches. | CO2 | 12 |
| b. | Brief the types of errors in data analysis. | CO1 | 8 |
| (OR) | | | | |
| 2. | a. | List out the different types of strain gauges and explain the demountable strain gauge with neat sketch. | CO3 | 12 |
| b. | Explain the experimental data analysis method. | CO1 | 8 |
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| 3. | a. | Discuss the mechanical vibration exciters with neat sketch. | CO2 | 12 |
| b. | Elucidate the construction of LVDT and its applications. | CO3 | 8 |
| (OR) | | | | |
| 4. | a. | Explain the working principle of Universal Testing Machine with neat sketch. | CO3 | 12 |
| b. | Discuss the Moire Fringe’s Technique. | CO3 | 8 |
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| 5. | a. | Mention the conditions and type of structures for which wind tunnel experiments are required. | CO1 | 5 |
| b. | Explain the construction and working principle of Cathode Ray Oscilloscope with neat sketch. | CO3 | 15 |
| (OR) | | | | |
| 6. | a. | Brief the working principle adopted for flow measurements in wind tunnel experiments. | CO1 | 5 |
| b. | Explain the working principle of XY Plotter, Rotometer and Orificemeter. | CO3 | 15 |
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| 7. | a. | Brief Buckingham’s π theorem in modal analysis. | CO3 | 8 |
| b. | Detail Rebound hammer test and Ultrasonic pulse velocity test with neat sketches and state the limitation of these two tests. | CO3 | 12 |
| (OR) | | | | |
| 8. | a. | Reason out the need for the load Test on bridges and discuss the instruments used for the inspection. | CO2 | 8 |
| b. | Discuss the principles of similitude and the need in the experiments. | CO2 | 12 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the accelerated curing test to predict the 28 days strength of concrete. | CO1 | 8 |
| b. | Explain in detail the method of detection of corrosion in concrete structures using half cell potential measurements. | CO3 | 12 |

ALL THE BEST