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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17CE3010** | **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 on the errors in measurements. | CO1 | 8 |
| b. | Explain the principle and working of electronic load cells, proving rings. | CO2 | 12 |
| (OR) | | | | |
| 2. | a. | Brief on the Photoelasticity, its types and its applications. | CO2 | 8 |
| b. | Explain the principles of operations of UTM. | CO2 | 8 |
| c. | Write a note on calibration of testing machines. | CO2 | 4 |
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| 3. | a. | Brief the Display and storage devices. | CO3 | 8 |
| b. | Elucidate the construction, working principle of LVDT with neat sketches and its advantages & disadvantages. | CO2 | 12 |
| (OR) | | | | |
| 4. | a. | Enlist the accelerometers and brief the working principle of servo accelerometer with neat sketch. | CO2 | 8 |
| b. | Explicate the construction and working principle of cathode ray oscilloscope with neat sketch. | CO3 | 12 |
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| 5. | a. | Brief the principle used in pressure measurements and classify the pressure measurands. | CO4 | 8 |
| b. | Enumerate the working principle of Seismograph and shock exciters. | CO4 | 12 |
| (OR) | | | | |
| 6. | a. | Brief the necessity of wind tunnel testing on structures and their testing methods. | CO4 | 8 |
| b. | Explainthe working principle of Rotometer and Manometer with neat sketch. | CO4 | 12 |
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| 7. | a. | State the significance of non-dimensional numbers: Reynold’s number, Froude number and Mach number. | CO5 | 8 |
| b. | Brief on the   1. Controlled blasting for demolition. 2. Rebound hammer test and 3. Ultrasonic pulse velocity method with neat sketches. | CO6 | 4  4  4 |
| (OR) | | | | |
| 8. | a. | Brief the Dimensional Homogenity and the laws of similarity. | CO5 | 8 |
| b. | Brief the   1. Undistorted model and Distorted model. 2. Scale ratios of distorted model. | CO5 | 8  4 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the Damage Assessement method with the flow chart. | CO6 | 8 |
| b. | Write short notes on   1. Infrared Thermography. 2. Acoustic Emission method. 3. Holography. | CO6 | 12 |