

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

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019**

**Course Code: EE494**  
**Course Name: Instrumentation Systems**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 5 marks.*

Marks

- |   |   |     |
|---|---|-----|
| 1 | Explain the I/P –O/P configurations needed in measuring instruments.  | (5) |
| 2 | Explain the various applications, advantages and disadvantages of LVDT.                                       | (5) |
| 3 | Summarize the various pressure measuring devices.   | (5) |
| 4 | Explain any one transducer for high pressure measurement.   | (5) |
| 5 | List the various instruments used for the measurement of temperature.   | (5) |
| 6 | List the laws of thermocouples.   | (5) |
| 7 | Define recorders used in instrumentation systems. List the importance of recorders in instrumentation system. | (5) |
| 8 | What are signal generators? List the importance of signal generators.   | (5) |

**PART B**

*Answer any two full questions, each carries 10 marks.*

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|----|--|------|
| 9  | Explain the various classification of transducers.   | (10) |
| 10 | a) Explain the working of null type and deflection type measuring devices with the help of an example. | (5)  |
|    | b) With neat figure, explain the working of any one transducer for measuring linear velocity.          | (5)  |
| 11 | Explain any two methods of torque measurement on rotating shafts.                                      | (10) |

**PART C**

*Answer any two full questions, each carries 10 marks.*

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|----|---|------|
| 12 | With neat figures, explain the working of bellows and diaphragm gages for absolute and differential pressure measurement. | (10) |
| 13 | a) Categorize the dynamometers based on the type of absorption units.   | (5)  |
|    | b) Summarize the various flow measuring devices.  | (5)  |
| 14 | With neat figure, explain the working of any two transducers for vacuum measurement.                                      | (10) |

**PART D**

*Answer any two full questions, each carries 10 marks.*

- 15 Construct an instrumentation system for the measurement of temperature using Infra-Red Pyrometers. (10)
- 16 a) Construct an instrumentation system for the measurement of temperature using Digital Thermometers. (5)
- b) Explain digital voltmeter with relevant circuit diagrams. (5)
- 17 Explain square wave generator with relevant circuit diagrams. (10)

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