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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Supplementary Examinations February-2022

METROLOGY & MEASUREMENTS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

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|---|---|--|----|
| 1 | a | Differentiate between Allowance and Tolerance | 2M |
| | b | Why micrometer carries a ratchet stop? | 2M |
| | c | List out tools required for machine alignment. | 2M |
| | d | List out contact and non-contact tachometers. | 2M |
| | e | How does a torque meter work? | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

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|---|---|---|----|
| 2 | a | Distinguish between 'Hole basis system' and 'Shaft basis system' of fits. | 5M |
| | b | Define deviations. Explain types of deviations with the help of sketches. | 5M |

OR

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| 3 | | What are the different types of gauges? Explain any four limit gauges. | 10M |
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UNIT-II

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| 4 | a | Simplify the angle measuring method involved in Bevel protractors with a neat sketch. | 6M |
| | b | Explain about angle gauges. | 4M |

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| 5 | | Explain with the help of neat sketches the principle and construction of an auto collimator. | 10M |
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UNIT-III

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| 6 | a | Explain three wire method of measuring effective diameter of screw threads | 5M |
| | b | What are the errors and its causes in screw threads? | 5M |

OR

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| 7 | a | Describe measurement of pitch by base Tangent method. | 5M |
| | b | Elaborate method of measuring the gear tooth thickness by Constant Chord method | 5M |

UNIT-IV

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| 8 | | List out Displacement transducers? Explain inductive transducer with suitable sketch. | 10M |
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OR

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| 9 | a | Define strain rosette? Depending on the arrangement of strain gauges, list out strain rosettes. | 5M |
| | b | Elaborate Rectangular strain gauge rosette. | 5M |

UNIT-V

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| 10 | a | Explain about Diaphragm gauge in detail. write advantages. | 5M |
| | b | List the essential characteristics required for the backing material of a bonded strain gauge. | 5M |

OR

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| 11 | | What are the basic methods of force measurement? Elaborate elastic force devices with neat sketch. | 10M |
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END