



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Third Semester, B.E. - Industrial and Production Engineering

Semester End Examination; Dec. - 2015

Engineering Metrology

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions, selecting ONE full question from each unit.

UNIT - I

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| 1 a. Distinguish between accuracy and precision. | 10 |
| b. Discuss the end measurement with a suitable example. | 10 |
| 2 a. Distinguish between whole basis system and shaft basis system. | 10 |
| b. Define Fit. With a neat sketch explain different types of Fit. | 10 |

UNIT - II

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| 3 a. State Taylor's principle of design for GO and NOGO gauges and explain with a suitable example. | 10 |
| b. List the different types of gauges and explain any two with a neat sketch. | 10 |
| 4 a. With a neat sketch explain construction and working principle of the sine centre. | 12 |
| b. Discuss the following: | 8 |
| i) Straightness ii) Sine bar | |

UNIT - III

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| 5 a. Enumerate the importance of a comparator and list the various types of comparator used in measurement. | 10 |
| b. With a neat sketch explain pneumatic comparator and list this advantages and disadvantages. | 10 |
| 6 a. Sketch and explain the working of laser interferometer. | 10 |
| b. Sketch and explain the working of autocollimator. | 10 |

UNIT - IV

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| 7 a. Define surface Roughness (R_a), Primary feature, Secondary feature and lay. | 12 |
| b. With a neat sketch explain screw thread terminology. | 8 |
| 8 a. Explain the Best Size wire method and derive equation for best size wire diameter. | 10 |
| b. Explain two wire methods and derive the equation to find the effective diameter. | 10 |

UNIT - V

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| 9 a. List various alignment tests an lathe and discuss any two with a neat sketch. | 10 |
| b. Discuss various tests on drilling machine. | 10 |
| 10a.. Distinguish between destructive and non – destructive testing methods. | 10 |
| b. Explain magnetic particle inspection with a suitable example. | 10 |