

Basavarajeswari Group of Institutions
BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT
 (Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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Second Semester B.E. Degree Examinations, Sept/Oct 2023
INTRODUCTION TO MECHANICAL ENGINEERING

Duration: 3 Hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions

Module - 1

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|-----|---|---|----|------------|
| Q.1 | a | Explain briefly the emerging trends of Mechanical engineering in different sectors. | 10 | 2:1:1.6.1 |
| | b | Explain the role of Mechanical Engineer in Industry and Society | 10 | 2:1:1.6.1 |
| OR | | | | |
| Q.2 | a | Describe the construction & working of Thermal power plant with aschematic diagram | 10 | 2:1:1.6.1 |
| | b | Explain the utilization of solar energy using flat plate collector witha schematic diagram. | 10 | 2:1:1.6.1 |

Module – 2

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|-----|---|--|----|-----------|
| Q.3 | a | Explain any four Lathe operations with a neat diagram. | 08 | 2:2:1.6.1 |
| | b | Explain any four Drilling operations with a neat diagram. | 08 | 2:2:1.6.1 |
| | c | Differentiate between Up milling and Down milling | 04 | 2:2:1.6.1 |
| OR | | | | |
| Q.4 | a | Describe the various components of CNC with schematic diagram. | 07 | 2:2:1.6.1 |
| | b | Explain any three Milling operations with a neat diagram. | 06 | 2:2:1.6.1 |
| | c | List the advantages and applications of CNC | 07 | 2:2:1.6.1 |

Module – 3

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|-----|---|--|----|-----------|
| Q.5 | a | Explain the working of the 4 stroke Petrol engine with sketches. | 12 | 2:3:1.6.1 |
| | b | Plot the PV diagram. | 08 | 2:3:1.6.1 |
| OR | | | | |
| Q.6 | a | Explain the components and working of electric vehicles. | 08 | 2:3:1.6.1 |
| | b | Explain the components of Hybridvehicles. | 08 | 2:3:1.6.1 |
| | c | List the advantages and limitations of electric vehicles. | 04 | 2:3:1.6.1 |

Module – 4

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|-----|---|--|----|-----------|
| Q.7 | a | Recite the classification of metals | 05 | 2:4:1.6.1 |
| | b | Describe the following Materials i) Ceramics ii) Shape memory Alloys | 06 | 2:4:1.6.1 |
| | c | Describe the three types of carbon steels with applications | 09 | 2:4:1.6.1 |

OR

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|-----|---|---|----|-----------|
| Q.8 | a | List the differences between Soldering, Brazing and Welding | 10 | 2:4:1.6.1 |
| | b | Describe the construction & working of Arc welding process with neat sketch | 10 | 2:4:1.6.1 |

Module – 5

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|-----|---|----|-----------|
| Q.9 | a Define Mechatronics. List the differences between Open loop and Closed loop systems | 08 | 2:5:1.6.1 |
| | b Based on the configuration, explain the four types of robots with sketches | 08 | 2:5:1.6.1 |
| | c Mention advantages and applications of Robotics. | 04 | 2:5:1.6.1 |

OR

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| Q.10 | a | Define Automation. Explain the three types of Automation. | 07 | 2:5:1.6.1 |
| | b | Describe the basic elements of fourth industrial revolution with block diagram | 08 | 2:5:1.6.1 |
| | c | Define IoT. List the characteristics of IoT. | 05 | 2:5:1.6.1 |