



III B.Tech I Sem Regular End Examination, December 2022

Metrology and Machine Tools

(Mechanical)

Time: 3 Hours.**Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part - A, answer all questions which carries 20 marks.

3. In Part - B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

PART- A**(10*2 Marks = 20 Marks)**

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|-------|--|----|-----|-----|
| 1. a) | List the different types of Chips formation | 2M | CO1 | BL1 |
| b) | Name the parts of the lathe. | 2M | CO1 | BL1 |
| c) | Outline the specification of boring machine. | 2M | CO2 | BL1 |
| d) | Write the applications of portable drilling machines | 2M | CO2 | BL1 |
| e) | Label the nomenclature of milling cutters | 2M | CO3 | BL1 |
| f) | List the types of abrasives | 2M | CO3 | BL1 |
| g) | Difference between unilateral and bi lateral system of tolerance | 2M | CO4 | BL2 |
| h) | Write a short note on selective assembly. | 2M | CO4 | BL1 |
| i) | What is surface roughness? | 2M | CO5 | BL1 |
| j) | Write the merits of laser scan micro meters. | 2M | CO5 | BL1 |

PART- B**(10*5 Marks = 50 Marks)**

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|-------|---|----|-----|-----|
| 2. a) | Write a about the cutting fluids and factors that influence selection of cutting fluid. | 5M | CO1 | BL1 |
| b) | Briefly discuss about Geometry of single point cutting tool? Also, explain the following i) rake angle ii) Clearance angle iii) cutting angle iv) lip angle, with neat sketch | 5M | CO1 | BL2 |

OR

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|-------|--|----|-----|-----|
| 3. a) | Explain briefly the list of specifications of Lathe | 5M | CO1 | BL2 |
| b) | What are the different attachments used in lathe machine? Explain any two attachments? | 5M | CO1 | BL4 |
| 4. a) | Summarize the operations performed by drilling machine. | 5M | CO2 | BL1 |
| b) | Sketch the Twist Drill and its terminology . | 5M | CO2 | BL1 |

OR

- 5 a) What is a Boring Machine and List its applications? 5M C02 BL1
 b) Explain the working principle of Planer Machine with neat sketch. 5M C02 BL4

- 6 a) Illustrate the Geometry of milling cutters and label the parts. 5M C03 BL2
 b) What is the method of direct indexing and why and where can you apply it? 5M C03 BL1

OR

- 7 With a neat sketch, explain the constructional features of broaching machine. 10M C03 BL4

- 8 a) Discrimination the hole and shaft basic system. 5M C04 BL2
 b) Discuss the concept of interchangeability. Why it is important 5M C04 BL2

OR

- 9 a) Identify the various methods are available for flatness testing. Explain any one. 5M C04 BL4
 b) Explain the constructional features of the autocollimator with a neat sketch. 5M C04 BL3

- 10 a) Investigate the primarily factors that arise to surface irregularities 5M C05 BL4
 b) Define the terms i) Roughness ii) Waviness 5M C05 BL1

OR

- 11 With neat sketch explain the working principle of Taylor Hobson Talysurf instrument 10M C05 BL4

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CO - Course Outcome

BL - Blooms Taxonomy Levels