**20ME503**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **December, 2023** | **Mechanical Engineering** | | |
| **Fifth Semester** | **Manufacturing Technology** | | |
| **Time:** Three Hours | | **Maximum:**70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | List different types of fits? | CO1 | L1 | 1M |
|  | b) | What are limit gauges? | CO1 | L2 | 1M |
|  | c) | Distinguish between Line standard and End standard. | CO1 | L2 | 1M |
|  | d) | What are the elements of measurement? | CO1 | L2 | 1M |
|  | e) | What is a bore gauge used for? | CO2 | L2 | 1M |
|  | f) | List the types of threads. | CO2 | L1 | 1M |
|  | g) | What is RA and RZ in surface roughness? | CO2 | L1 | 1M |
|  | h) | Differentiate between roughness and waviness. | CO2 | L1 | 1M |
|  | i) | What is the purpose of Fixture? | CO3 | L1 | 1M |
|  | j) | What is an indexing jig? | CO3 | L1 | 1M |
|  | k) | List the applications of AM. | CO3 | L1 | 1M |
|  | l) | What is gear shaping? | CO3 | L2 | 1M |
|  | m) | [What is spring back in bending?](https://www.google.com/search?sca_esv=587611622&biw=1366&bih=657&q=What+is+springback+in+bending%3F&sa=X&ved=2ahUKEwih45juzvWCAxWba2wGHTiqBw8Qzmd6BAgZEAY) | CO4 | L2 | 1M |
|  | n) | What is the principle of press tool? | CO4 | L2 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Explain the differences between hole and shaft basis systems. | CO1 | L2 | 7M |
|  | b) | Explain interchangeability with suitable example? | CO1 | L2 | 7M |
| **(OR)** | | | | | |
| 3 | a) | State and explain the “Taylor’s principle of gauge design. Explain the following in connection with gauge design: (1) Gauge maker’s tolerance (2) Wear allowance. | CO1 | L2 | 7M |
|  | b) | Determine the dimensions of hole and shaft for a fit 30H7 h8. 30mm lies between 18and 30mm. IT7 = 16i, IT8 =25i. What is the type of fit and draw it? | CO1 | L3 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Differentiate between Alignment test and Performance test. | CO2 | L2 | 7M |
|  | b) | What is optical projector? Explain. | CO2 | L2 | 7M |
| **(OR)** | | | | | |
| 5 | a) | Explain any four alignment tests on lathe machine. | CO2 | L2 | 7M |
|  | b) | Explain the working principle of Tomlinson surface meter with a neat sketch. | CO2 | L2 | 7M |
| **Unit-III** | | | | | |
| 6 | a) | What are the design considerations for jigs and fixtures? Explain. | CO3 | L2 | 7M |
|  | b) | Discuss various gear manufacturing methods. | CO3 | L3 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Explain the Stereo lithography process and principle in detail with a neat sketch. | CO3 | L3 | 7M |
|  | b) | Discuss the purpose and advantages of jigs and fixtures. | CO3 | L2 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | What is the difference between progressive die compound die and combination die? | CO4 | L3 | 7M |
|  | b) | Sketch and Explain the [main components of press tool?](https://www.google.com/search?sca_esv=587611622&biw=1366&bih=657&q=What+are+main+components+of+press+tool%3F&sa=X&ved=2ahUKEwiX6pPUzfWCAxX2RmcHHaJ2AEcQzmd6BAgYEAY) | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 | a) | How do you calculate blank size for deep drawing? | CO4 | L3 | 7M |
|  | b) | What are the methods of bending? Explain. | CO4 | L2 | 7M |

