**20ME503**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **February,2023** | **Mechanical Engineering** | | |
| **Fifth Semester** | **Manufacturing Technology** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (14X1 = 14 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X14=56 Marks) |

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| 1. | a) | Give an example of end standard | CO1 | L2 | 1M |
|  | b) | What is the importance of interchangeability | CO1 | L1 | 1M |
|  | c) | What is the function of Ring gauge | CO1 | L1 | 1M |
|  | d) | Define Taylor’ principle | CO2 | L2 | 1M |
|  | e) | What is the principle of Autocollimator | CO2 | L3 | 1M |
|  | f) | Define RMS value. | CO2 | L2 | 1M |
|  | g) | How many degrees of freedom are constrained with 6pins (3-2-1) | CO3 | L2 | 1M |
|  | h) | Draw neat sketch of any one clamping device | CO3 | L2 | 1M |
|  | i) | List any three methods of manufacturing gears | CO3 | L1 | 1M |
|  | j) | List any two applications of Additive Manufacturing | CO3 | L2 | 1M |
|  | k) | What is the significance of providing shear to the die | CO4 | L2 | 1M |
|  | l) | What is the application of compound die. | CO4 | L2 | 1M |
|  | m) | Differentiate punching and blanking. | CO4 | L2 | 1M |
|  | n) | What is the purpose considering the spring back effect in bending. | CO4 | L2 | 1M |
| **Unit -I** | | | | | |
| 2. | a) | Explain Hole based and Shaft based system of Fits, which system is preferred and Why? | CO1 | L1 | 7M |
|  | b) | Why is it necessary to give a tolerance on an engineering dimension and differentiate between unilateral and bilateral tolerance. | CO1 | L2 | 7M |
|  |  | **(OR)** |  |  |  |
| 3. | a) | What is a “gauge “ explain how a “workshop gauge” differs from “inspection gauge” | CO1 | L2 | 7M |
|  | b) | Explain the working principle of sine bar with a neat sketch. | CO1 | L1 | 7M |
|  |  | **Unit -II** |  |  |  |
| 4. | a) | Explain the principle of Sigma comparator with a neat sketch. | CO2 | L1 | 7M |
|  | b) | Differentiate between primary texture and Secondary texture. | CO2 | L2 | 7M |
|  |  | **(OR)** |  |  |  |
| 5. | a) | Derive an expression for the effective diameter of thread by using three wire with suitable assumptions. | CO2 | L1 | 7M |
|  | b) | What is meant by alignment tests on machine tools and why they are necessary? | CO2 | L2 | 7M |
|  |  | **Unit -III** | |  |  |
| 6. | a) | Differentiate between jig and fixture. | CO3 | L2 | 7M |
|  | b) | Explain any two jigs with a neat sketch. | CO3 | L2 | 7M |
|  |  | **(OR)** |  |  |  |
| 7. | a) | What are the advantages of gear shaping over the other methods and mention its applications. | CO3 | L1 | 7M |
|  | b) | Explain the Stereolithography process. | CO3 | L2 | 7M |
|  |  | **Unit -IV** |  |  |  |
| 8. | a) | Find the total pressure , dimensions of tools to produce a washer 5cm outside diameter with a 2.4cm diameter hole , from a material 4mm thick , having a shear strength of 360N/mm2 | CO4 | L3 | 7M |
|  | b) | Draw a neat sketch of progressive die explain briefly. | CO4 | L1 | 7M |
|  |  | **(OR)** |  |  |  |
| 9. | a) | Derive an expression for drawing force with suitable assumptions. | CO4 | L2 | 7M |
|  | b) | what is the role of bending allowance in bending operation. | CO4 | L2 | 7M |

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