

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2173408**Date:21/11/2016****Subject Name:Design of Machine Tools****Time:10.30 AM to 1.00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|-----|---|-----------|
| Q.1 | (a) | Explain the general requirements of machine tool design. | 07 |
| | (b) | Explain in brief, general engineering design process to machine tools. | 07 |
| Q.2 | (a) | Explain the classification of speed boxes. | 07 |
| | (b) | Draw the interference and machining diagram for development of lathe machine used for work $\varnothing 250 \times 500$ mm. | 07 |
| OR | | | |
| | (b) | Explain the classification of feed boxes. | 07 |
| Q.3 | (a) | Explain the functions of machine tool structures and their requirements. | 07 |
| | (b) | Explain the design criteria for machine tool structures. | 07 |
| OR | | | |
| Q.3 | (a) | Explain the application of slide way profiles and their combinations. | 07 |
| | (b) | Explain the factors affecting on design of sliding-friction power screws. | 07 |
| Q.4 | (a) | Explain different types loading and material properties related to machine tool structure design. | 07 |
| | (b) | Explain the factors affecting stiffness of machine tool structure and methods of improving it. | 07 |
| OR | | | |
| Q.4 | (a) | Explain in details, materials for spindle. | 07 |
| | (b) | Explain different functions and requirements of spindle unit. | 07 |
| Q.5 | (a) | Explain basic design procedure of machine tool structures. | 07 |
| | (b) | Explain the general design procedure of column structure. | 07 |
| OR | | | |
| Q.5 | (a) | Explain in brief, general design procedure of hoist. | 07 |
| | (b) | Explain different materials used for designing the hoist. | 07 |
