

Roll No. :

Total No. of Questions : 9] [Total No. of Pages : 3

22604

**M.Tech. (ME) 1st Semester
Examination, March-2021
(CBCS Scheme)**

**MACHINE TOOL DESIGN
Paper-MTME21C4**

Time : Three Hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :- Question No. 1 is compulsory. Attempt total five questions by selecting at least one question from each Section.

1. Explain the following :
 - (a) Machine tool drives
 - (b) Static and dynamic stiffness

(c) Hydraulic and mechanical transmission and its elements

(d) Design of power screws $5 \times 4 = 20$

Section-A 20 each

2. Explain in detail the general requirement of machine tool design.
3. Explain in detail step-less regulation of speed and feed rates.

Section-B 20 each

4. Explain in detail machine tool structure with its functions and requirements.
5. Explain the basic design procedure for columns and other structural elements.

Section-C 20 each

6. Explain the design procedure for slide ways.
7. Explain the various design considerations and procedure for power screws.

Section-D 20 each

8. Explain in detail the function and requirement of control systems in machine tool design.
9. Explain the criteria and parameters used for the selection of machine tools.