



COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)
SHIVAJI NAGAR, PUNE - 411 005

END Semester Examination ¹⁴⁰⁰¹ PE ~~401~~ - Machine Tool Design TH

Course Name: B.Tech

Branch Name: Production Engineering (Sandwich)

Semester Name: Sem VII

Max.Marks:60

Year: 2014-2015

Date: ~~22/11/2014~~

Duration: 3 Hours Time:- 2 to 5 pm

19 NOV 2014

Instructions:

MIS No.

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1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of anything like stationery, calculator is not allowed.
5. Assume suitable data if necessary.
6. Write your Seat Number on Question Paper

Answer any Six question and all questions carry equal marks

- Q-1) Derive an expression for GP ratio limitation ($1 < 0 < 2$) for machine tool stepped drive system. What is meant by Deviation diagram?
- Q-2) What are different materials used for machine tool bed? What do you understand by Unit rigidity & Unit strength for machine tool bed design?
- Q-3) Find out an expression of spindle support spacing in a lathe under permissible deflection
- Q-4) Draw a block diagram for a NC machine. Describe adaptive control of a CNC machine
- Q-5) With a neat sketch describe thermal relay operation to prevent overloading of

electrical motor in machine tool.

- Q-6) What are sources of machine tool vibration? Find an expression for static rigidity of a machine tool.
- Q-7) Why box section is preferred for machine tool bed? Discuss machine tool guide wear.
- Q-8) Write notes on (1) FMS (2) pitch error in power screw (3) Ball variator