

SUBJECT CODE:- 140
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (Mechanical) Examination Nov/Dec 2015
Machine Tool Design[Elective-II]
(Revised)

[Time: Three Hours]

[Max. Marks: 80]

“Please check whether you have got the right question paper.”

- N.B
- i) Solve any three questions from each section.
 - ii) Figures to the right indicate full marks.
 - iii) Assume suitable additional data if required.
- Section A
- Q.1 A Explain working and auxiliary motions in machine tools give examples. 06
 B What is layout of machine tool? With neat sketch explain layout of any one machine tool. 07
- Q.2 A What are the forces acting on cutting tools in turning process? 07
 B Explain hydraulic transmission system with its elements. 06
- Q.3 Find the speed step arranged in geometric progression for the following conditions : 13
 $N_{\min}=30\text{rpm}$, $N_{\text{mark}}=1240\text{rpm}$, $\phi=1.4$. Write possible structural formula. Draw the best structural diagram.
- Q.4 A What are the various profiles of machine tool structure 06
 B Explain static and dynamic stiffness. 07
- Q.5 Solve any two of the following. 14
 a) Acceptance tests for machine tools
 b) Special cases of Gear box design
 c) Basic design procedure of machine tool structure
- Section-B
- Q.6 A What are the various methods of adjusting clearances in sideways? 06
 B Explain combination guide ways and their applications. 07
- Q.7 A What are the effects of machine tool, compliance on machining accuracy? 07
 B Derive an expression for deflection of spindle axis due to bending. 06
- Q.8 What are the force acting on the mating surfaces in a combination of v and flat sideways? 13
- Q.9 A What are the dynamic channel elastics of equivalent elastic system? 07
 B With block diagram explain closed loop machining system. 06
- Q.10 Solve any two questions of the following. 14
 a) Forced vibration of machine tools
 b) Anti friction Bearings
 c) Shapes of sideways