

Total No. of Questions : 12]

SEAT No. :

P3927

[Total No. of Pages : 2

[4859]-40

**B.E. (Mechanical) (Semester - I)**  
**MACHINE TOOL DESIGN (Elective - II)**  
**(2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answer three questions from section I and three questions from section II.*
- 2) Answer to the two sections should be written in separate answer book.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Assume suitable data, if necessary.*

**SECTION - I**

**Q1)** Sketch and explain elements of hydraulic transmission elements used in machine tools. **[16]**

OR

**Q2)** Explain machine tool design process with the help of block diagram. **[16]**

**Q3)** Discuss the design criteria for machine tool structures. **[16]**

OR

**Q4)** Discuss the factors affecting stiffness of machine tool structure and methods of improving it. **[16]**

**Q5)** Explain design criteria for slideways. **[18]**

OR

**Q6)** Discuss the procedure for design of hydrodynamic slideways. **[18]**

**P.T.O.**

**SECTION - II**

**Q7)** Discuss the design calculations for spindles. [16]

OR

**Q8)** Write a short note on anti-friction bearing. [16]

**Q9)** Write a short note on dynamic characteristic of cutting process. [16]

OR

**Q10)** Describe the design considerations and methods used to vibrations in machine tool. [16]

**Q11)** Write a short note on design consideration in micro machining. [18]

OR

**Q12)** Write a short note on recent trends in machine tool automation. [18]

