Total No. of Questions : 12]

SEAT No. :

P2669

[Total No. of Pages : 2

[5154]-39
B.E. (Mechanical S/W)
MACHINE TOOL DESIGN
(2008 Pattern) (Semester - I) (Elective - II)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4 and Q.5 or Q.6 from section-I and Q.7 or Q.8, Q.9 or Q.10 and Q.11 or Q.12 from section - II.***
2) ***Use two separate answer book for section-I and section-II.***
3) ***Assume suitable data if necessary.***
4) ***Figures to right indicate full marks.***

SECTION - I

UNIT - I

Q1) a) Differentiate between the design considerations for continuous and intermittent power drives. **[9]**

b) Write short note on : Preferred number series as applied for machine drives. **[7]**

OR

Q2) Draw Structure Diagrams for following structure formulae, find out optimum formula out of them and draw the gearing diagram for the optimum formula: 2(1)3(2), 2(3)3(1), 3(1)2(3), 3(2)2(1) **[16]**

UNIT - II

Q3) a) What is the effect of stiffeners on bending and torsional stiffness of structures? **[8]**

b) Write short note on: Design Considerations of Beds and Columns. **[8]**

OR

Q4) Write short note on: Static and dynamic stiffness of bases and tables. **[16]**

UNIT - III

Q5) a) Explain positional error caused by stick slip and the parameters on which it depends. **[9]**

b) Write short note on: Reconditioning of machine tool guide ways. **[9]**

OR

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Q6) a) Write short note on Hydrostatic lubrication systems for guide ways. **[9]**

b) Write short note on: Wear compensation in guide ways. **[9]**

SECTION - II

UNIT - IV

Q7) Write short notes on: **[16]**

a) Analysis and preloading of antifriction bearing

b) Types of Spindle supports.

OR

Q8) Explain the requirements of machine tool spindles. **[16]**

UNIT - V

Q9) a) Explain the process of stability analysis of machine tools. **[8]**

b) Explain Adaptive control systems. **[8]**

OR

Q10) Compare different control systems for different machine tools and give relative merits and demerits. **[16]**

UNIT -VI

Q11) a) Explain the process of retrofitting. **[9]**

b) Write short note on: Design Layout of machine tool using matrices. **[9]**

OR

Q12) a) Explain the Design considerations NC/CNC Machines. **[9]**

b) What are Recent trends in machine tools? **[9]**