T8232 / T8070   MACHINE TOOL DESIGN

23/05/17

Q.P. Code: 13585

[Time: Three Hours]   [Marks:80]

Please check whether you have got the right question paper.

N.B:
- Attempt any FOUR questions out of SIX questions.
- Assume suitable data wherever required.
- Illustrate answers with sketches wherever required.

Answer any four questions

Q1

1) Classify speed and feed boxes

2) List out and explain different acceptance tests of Machine tools

3) Short note on Materials of spindles in Machine tools

4) Explain Functions of spindle unit and its requirements

5) Explain ray chart and speed chart for speed and feed box

20

Q2

(i) Design procedure of sliding friction power screws based on wear resistance, strength, stiffness, buckling stability   10

(ii) Explain gearing diagram and their analysis to select the possible version   10

Q3

(i) Derive the deflection of spindle axis due to compliance of spindle supports   10

(ii) How to carryout procedure of Level installation of machine tools with instruments   10

Q4

(i) Explain structural diagram and their analysis to select the possible version   10

(ii) Derive optimum spacing between spindle supports   10

Q5

(i) Minimum Speed   250rpm, Maximum Speed 800rpm, Motor H.P   10hp, Motor Speed =1400rpm

Draw

1. Structural Diagram

2. Optimal Ray diagram

3. Deviation Diagram

4. Gearing Diagram

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1

(13)

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Answerany two questions

   (i)   Parallelism of tailstock guideways with the movement of carriage

Q6   20

   (ii)   Testing of spindle axis parallel to bed

   (iii)   Explain Mechanisms involves in stepless regulation of speed and feed rates

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