B. Tech Degree VIII Semester Examination, April 2008

ME 804 PRODUCTION TECHNOLOGY III

(1999 Scheme)

Time : 3 Hours | Maximum Marks : 100

I. (a) Describe the various design considerations for speed Gear box of a machine tool. (8)

(b) Explain the arrangements available for stepped regulation of speed and feed in machine tools. (12)

OR

II. (a) Define a Machine Tool. How are machine tools classified? (10)

(b) What is Speed Structure Analysis? Draw different structure diagrams for 4 speed gear box with 2 stages. (10)

III. Explain design considerations for Jigs and Fixtures. (20)

OR

IV. Elaborate various clamping devices. Narrate the requirements for efficient clamping. (20)

V. (a) Differentiate single and double action draw dies. (10)

(b) What are the considerations for fixing Die clearance while designing a press tool? (10)

OR

VI. (a) Explain fundamental Die Cutting operations. (15)

(b) What is "Spring back"? Cite one method employed for overcoming it. (5)

VII. (a) Draw the symbols representing following applications in a Hydraulic Circuit.

(i) Flow Lines (ii) Control Valves

(iii) Differential Cylinder (iv) Free Non Return Valve

(v) Spring loaded non return valve (5)

(b) Explain a Tracer Controlled Hydraulic circuit. (15)

OR

VIII. Why do you require hydraulic pumps in machine tools? Explain any two commonly employed hydraulic pumps in machine tools. (20)

IX. What machining time will be required to drill a 15 mm hole through a 50 mm thick steel plate. The feed for a 15 mm drill should be 0.2 mm per revolution and rpm = 1480. If the machining cost is Rs.160/- per hour, find machining cost/hole? (20)

OR

X. A cylindrical drum of mean diameter 75cm and height 125 cm, with both ends closed, is to be fabricated from a 5 mm thick sheet. The longitudinal joint is to be a grooved joint, while the end covers are to be joined with cylindrical shell by single seam joints. Estimate the cost of material, on the basis of actually utilized material, if sheet metal is available at Rs.350/m^2. (20)

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