

SECTION-B

2.
 - a) Explain the various steps for the design of V-belt.
 - b) Discuss the materials and practical applications for the various types of springs.
3. What are journal bearings? Give a classification of these bearings.
4.
 - a) What are contact clutches? Give their classification.
 - b) Write and explain Stribeck's equation.
5. Design a leaf spring for the following specifications : Total load = 140 kN ; Number of springs supporting the load = 4 ; Maximum number of leaves = 10; Span of the spring = 1000 mm ; Permissible deflection = 80 mm. Take Young's modulus, $E = 200 \text{ kN/mm}^2$ and allowable stress in spring material as 600 MPa.
6. Determine the dimensions of an I-section connecting rod for a petrol engine from the following data: Diameter of the piston = 110 mm; Mass of the reciprocating parts = 2 kg; Length of the connecting rod from centre to centre = 325 mm; Stroke length = 150 mm; R.P.M. = 1500 with possible over speed of 2500; Compression ratio = 4: 1; Maximum explosion pressure = 2.5 N/mm^2 .
7. Discuss the various bearing performance parameter.

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