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B.TECH (SEM VI) THEORY EXAMINATION 2022-2023 MACHINE DESIGN

Times & Hours

Total Marks: 100

- Note: I. Attempt all Sections. If require any missing data; then choose suitably.
 - 2. Design data hand book is allowed.
 - 3. Assume suitable data if missing

SECTION A.

- Attempt all questions in brief.
 - _tad Define Notch Sensitivity and its significance
 - (b) Define principal stress and principal plane.
 - _(c) Differentiate between chalking and fullering.
 - (d) If the tearing efficiency of a riveted joint is 60%, find the ratio of diameter of rivet hole to the pitch of rivets.
 - (e) Discuss the advantages and disadvantages of Helical gear.
 - (f) Define pressure angle for the gear.
 - (g) Define "static load rating" of rolling contact bearing.
 - Qu' A self-aligning ball bearing has a basic dynamic load rating C= 35 kN. If the equivalent radial load on the bearing is 45 kN, calculate the expected L10 life in multivers of percolution.
 - (i) Differentiate between dry liner and wet liner
 - (j) Discuss advantages of clutch over coupling.

SECTION B

Attempt any three of the following: 2.

(a) Explain the design procedure in brief. A flat bar as shown in figure is subjected to an axial load pf 50 KN, if the stress in the bar is to be limited 100N/m2, Determine the thickness of the bar considering stress concentration.



(b) A plate 75 mm wide and 12.5 mm thick is joined with another plate by a singletransverse weld and a double parallel fillet weld as shown in Fig.

The maximum tensile and shear stresses are 70 MPa and56 MPa respectively. Find the length of each parallel fillet weld.

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Marco Cascella

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