



PAPER :D-410437

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Subject Code: KME602Roll No:

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BTECH
(SEM VI) THEORY EXAMINATION 2023-24
MACHINE DESIGN

TIME: 3 HRS

M.MARKS: 100

7. Attempt any *one* part of the following:

1 x 10 = 10

a.	A four-stroke diesel engine has the following specifications: Brake power = 5 kW ; Speed = 1200 r.p.m. ; Indicated mean effective pressure = 0.35 N / mm ² ; Mechanical efficiency = 80 %. Determine : 1. bore and length of the cylinder ; 2. thickness of the cylinder head ; and 3. size of studs for the cylinder head.	(1)	
b.	An automotive plate clutch consists of two pairs of contacting surfaces with asbestos friction lining. The maximum engine torque is 250 N-m. The coefficient of friction is 0.35. The inner and outer diameters of friction lining are 175 and 250 mm respectively. The clamping force is provided by nine springs, each compressed by 5 mm to give a force of 800 N, when the clutch is new. (i) What is the factor of safety with respect to slippage when the clutch is brand new? (ii) What is the factor of safety with respect to slippage after initial wear has occurred? (iii) How much wear of friction lining can take place before the clutch will slip?	(1)	

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