ASSIGNMENT: 2

1. The following data is given for a pair of helical gears made of steel:
   Normal module = 5 mm,
   Face Width = 50 mm,
   No. of Pinion Teeth = 30,
   No. of Gear Teeth = 60,
   Centre distance = 245 mm,
   Normal Pressure angle =200,
   Pinion speed = 1000 r.p.m,
   surface hardness = 300 BHN,
   FOS = 2 Service Factor = 1.5,
   Grade of Machining = 8,
   Tooth form factor (Y) = 0.385
   Permissible σb for pinion and gear material=150N / mm2.
   Determine:(i) Helix angle (ii) Beam strength (iii) Max. Static load that gear can transmit (iv) Power transmitting capacity
2. A helical gear speed reducer is to be designed. The rated power of the speed reducer is 75 kw at a pinion speed of 1200 rpm. The speed ratio is 3:1 for medium shock condition and 24 hr operation. Determine module, face width, no. of teeth in each gear. Specify material & heat treatment. The teeth are 20o full depth in the normal plane.

3.