

## ASSIGNMENT 6

1. Explain design of shafts based on twisting moment and bending moment.
2. Design of shaft based on combined twisting moment and bending moment.
3. Give the classification of key. Explain about all keys.
4. Design of shafts based on rigidity based.
5. Design a shaft to transmit power from an electric motor to a lathe head stock through a pulley by means of a belt drive. The pulley weighs 200 N and is located at 300 mm from the centre of the bearing. The diameter of the pulley is 200 mm and the maximum power transmitted is 1 kW at 120 r.p.m. The angle of lap of the belt is  $180^\circ$  and coefficient of friction between the belt and the pulley is 0.3. The shock and fatigue factors for bending and twisting are 1.5 and 2.0 respectively. The allowable shear stress in the shaft may be taken as 35 MPa.

