Assignment 1

Q.1 What is a machine? Giving example, differentiate between a machine and a structure.

Also, Explain different kinds of kinematic pairs giving example for each one of them.

Q.2 Sketch and explain two inversions of a four bar chain.

Q.3 Sketch and explain three inversions of a slider crank chain.

Q.4 Figure (a) shows the configuration diagram of a four-link mechanism along with the lengths of the links in mm. The link *AB* has an instantaneous angular velocity of 10.5 rad/s and a retardation of 26 rad/s² in the counter-clockwise direction. Find

- (i) the angular accelerations of the links BC and CD
- (ii) the linear accelerations of the points *E*, *F* and *G*.



Q.5 In the mechanism shown in Fig.(b), the crank OA rotates at 60 rpm. Determine

(i) the linear acceleration of the slider at B

(ii) the angular acceleration of the links AC, CQD and BD.

