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In the toggle mechanism as shown in Fig. (2), D is constrained……

Question:

In the toggle mechanism as shown in Fig. (2), D is constrained to move on a horizontal path. The dimensions of various links are AB = 200 mm, BC = 300 mm, OC = 150 mm and BD = 450 mm. The crank OC is rotating in a counter clockwise direction at a speed of 180 rpm. Find, for given configuration (1) velocity and (2) acceleration of 'D'.

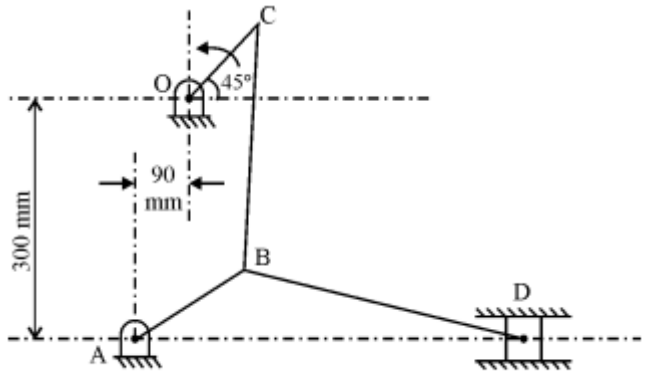
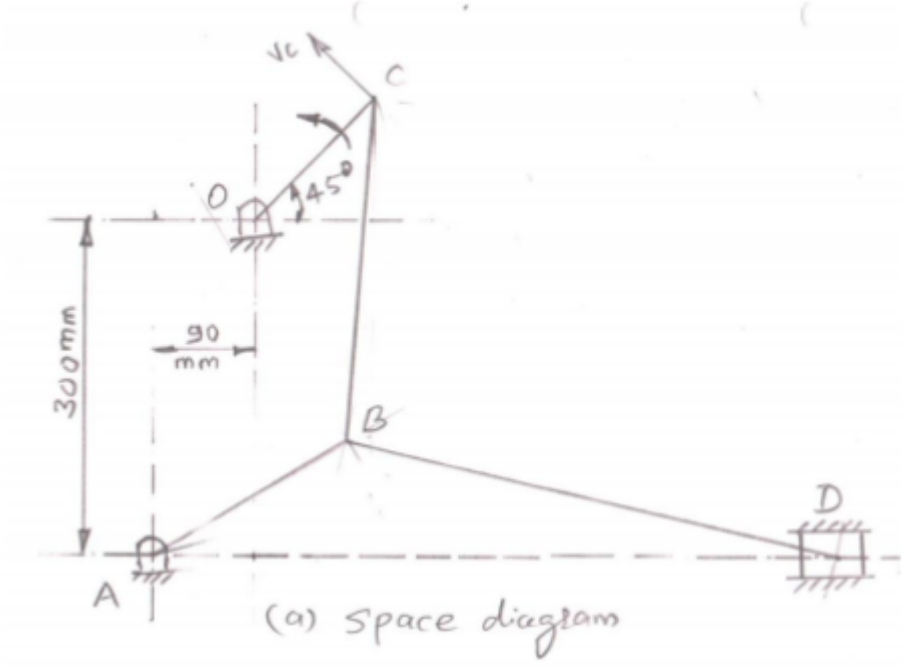
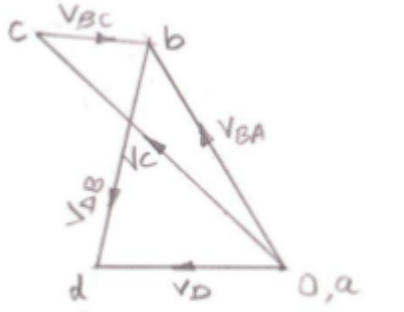


Fig. 2

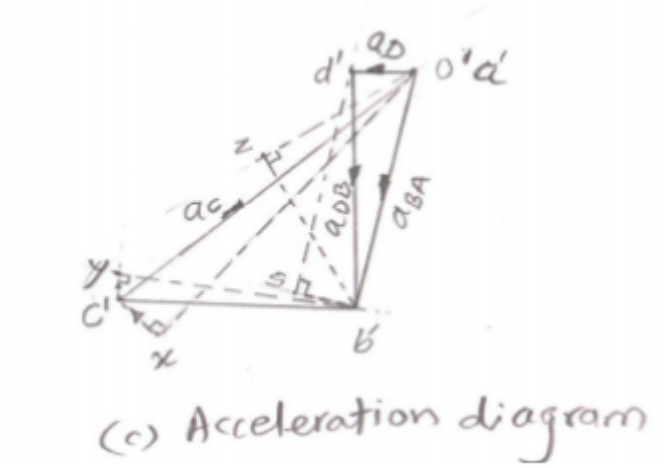
Answer:



(a) Space diagram



(b) Velocity diagram



(c) Acceleration diagram

1.Velocity of slider 'D' = vector ad = 1.6 m/s
2. Acceleration of slider 'D' = vector a'd' = 9.0 m/s²