Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Science and Technology
300 level 2nd Semester Examination – Sept. / Oct. 2015
SCT 366-2 Mechanics of Machines

Instructions to candidates
Duration: 02 hours
Number of questions: 03
Mark allocation: 100 mark
Answer All Questions

1.

The crank OA of a mechanism (or a machine? use a suitable word), as shown in Figure 1, rotates clockwise at 100 rpm. The lengths of various links are: OA = 100 mm ; AB = 400 mm ; AC = 100 mm and CD = 500 mm. Write expressions using instantaneous center method for,

a. Velocity of slider B

b. Velocity of the midpoint of CD

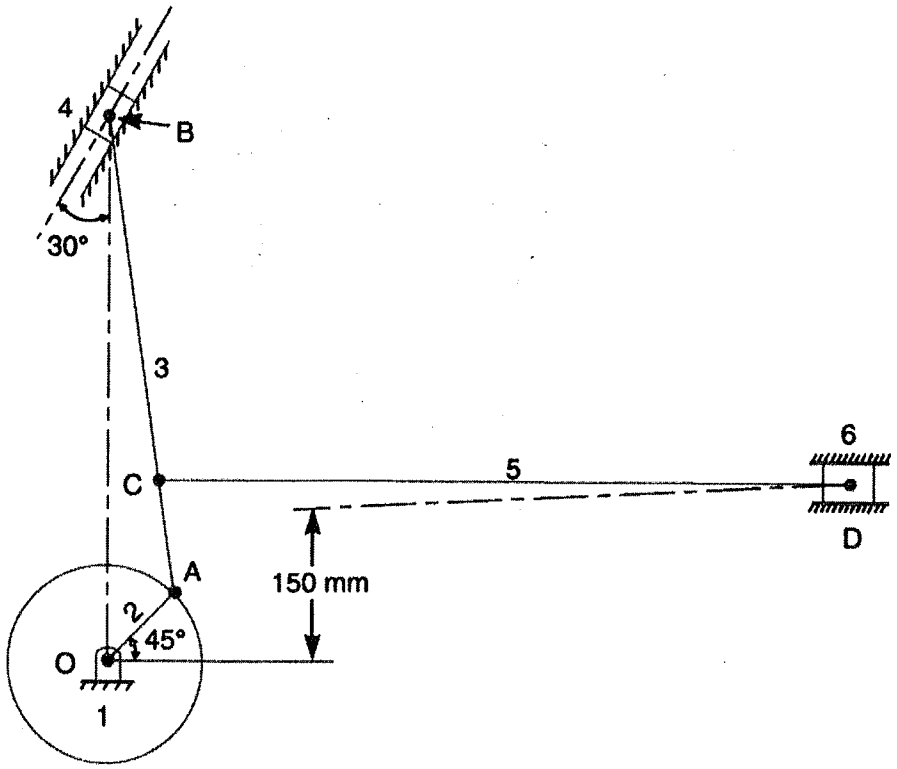

Figure 1

(25 mark)

10

2.

Consider the mechanism in Figure 2.

a. Draw the velocity diagram.

b. Draw the acceleration diagram.

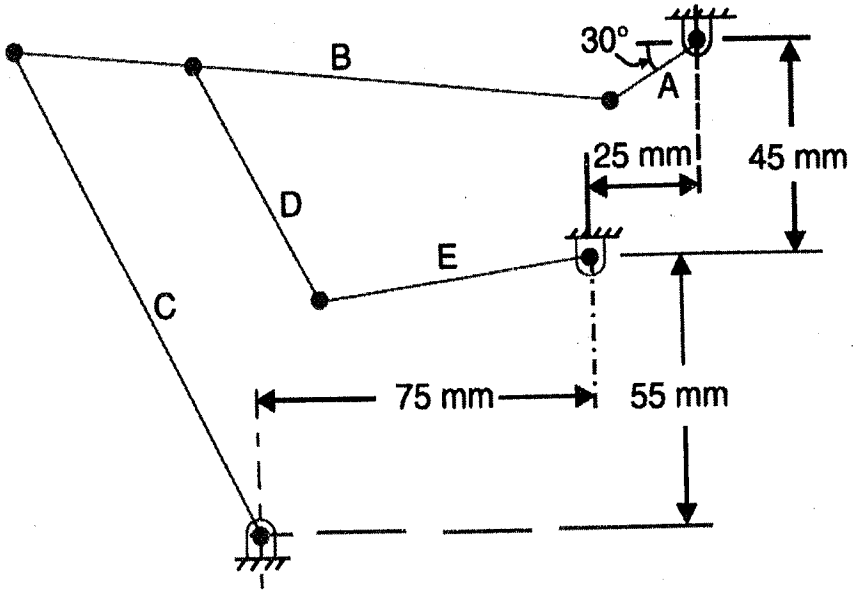

Figure 2

(25 x 2 = 50 mark)

3.

In a turning moment diagram, the areas above and below the mean torque line taken in order are 5000, 1100, 1300 and 4300 mm^2 respectively. The scales of the turning moment diagram are:

Turning moment, 1 mm = 100 Nm;

Crank angle, 1 mm = 1°.

Find the mass of the flywheel required to keep the speed between 297 and 303 rpm, if the radius of gyration is 0.525 m.

(25 mark)