GOVERNMENT COLLEGE OF ENGIEERING AMRAVATI

(An Autonomous Institute of Government of Maharashtra)

Class test-I (Summer 2017)

Subject code and name: CEU 101 (Engineering Mechanics)   Maximum marks: 15
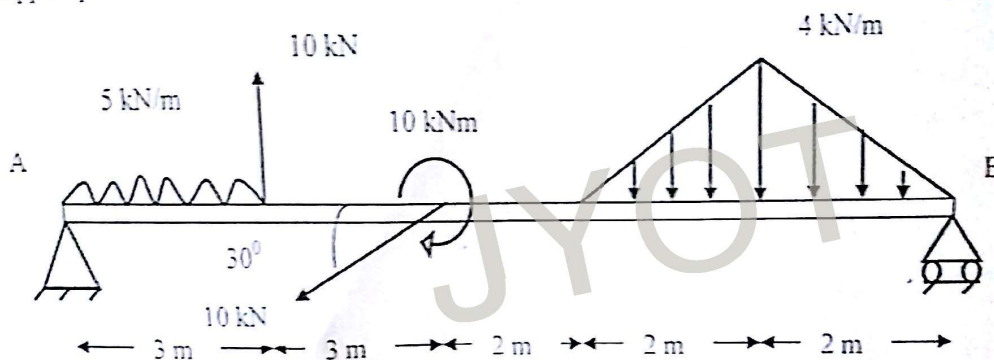
Date: 13/02/2017   Time: 4:30-5:30 PM

Q.1 a) State and Explain   (3 marks)

a) Lami's Theorem

b) Cantilever Beam

c) Uniformly distributed load

b) A beam has been loaded and supported as shown in figure 1. Determine the reactions at the support points A and B.   (5 Marks)

Q. 2 a) A car is pulled by means of two ropes as shown in figure 2. The tension in one rope is P=2.6 kN. If the resultant of two forces applied at O is directed along the x-axis of the car. Find the tension in the other rope and magnitude of the resultant.   (3 Marks)
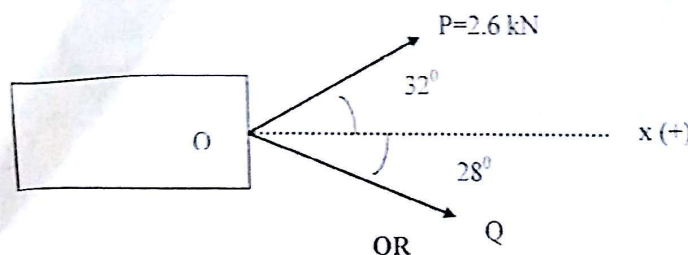

Figure 2

OR

b) Determine the tension in cable ADB and reaction at C. Neglect the friction in pulley and self weight of beam AC.   (3 Marks)
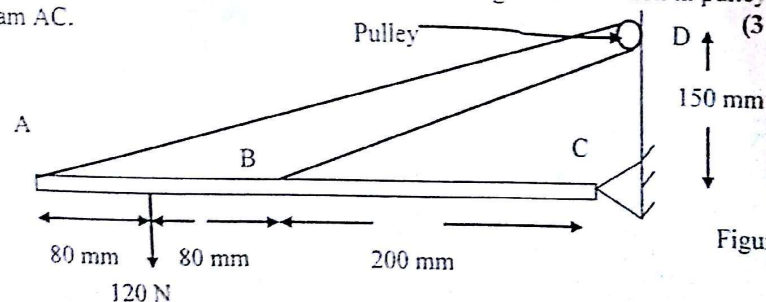

Figure 3

c) Two cylinders each of diameter 100 mm and each weighing 200 N placed as shown in figure 4. Assuming that all the contact surfaces are smooth, find the reactions at A, B and C. (4 Marks)
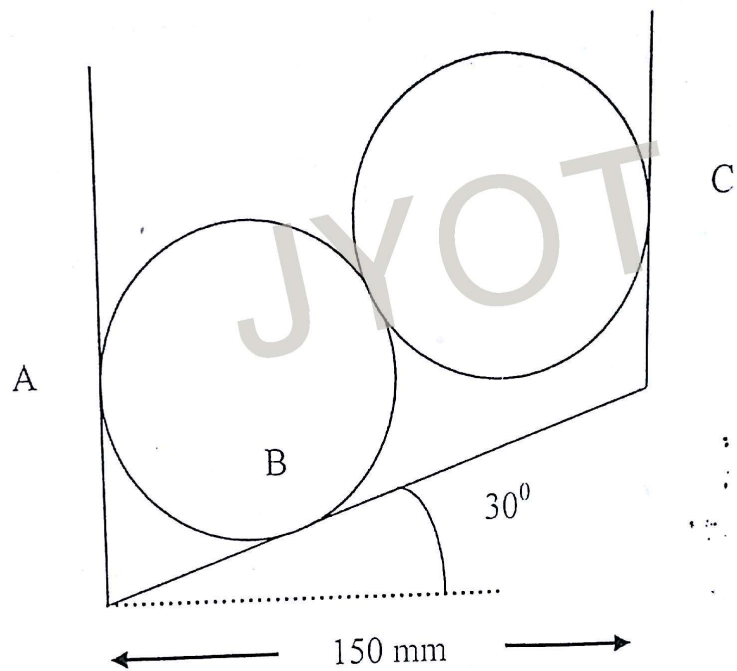

Figure 4

GOVERNEMNT COLLEGE OF ENGINEERING AMRAVATI

(An Autonomous Institute of Govt. of Maharashtra)

Class test- I

Name of subject: Engineering Mechanics   Course Code: CEU 101

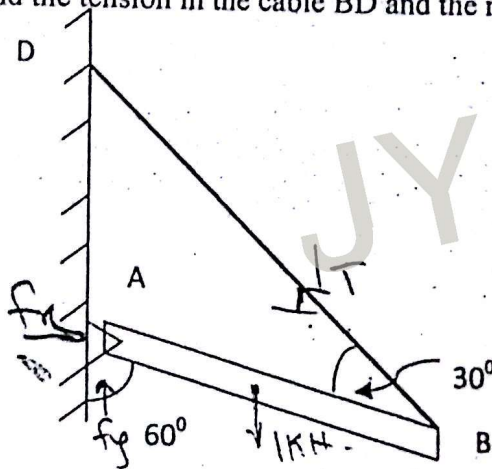Date: 02/01/15   Time: 3:00-4:00 PM

1a) Define   (3 marks)

    1) Perfect truss
    2) Resolution of forces
    3) Principle of moment

b) A bar AB of length *l* and weight 1 kN is hinged to a vertical wall at A and supported by a cable BD as shown in figure 1. Find the tension in the cable BD and the magnitude and direction of reaction at hinge A.

(3 marks)

Figure 1

OR

c) Determine reactions developed at the support in the beam as shown in figure 2.   (3 marks)
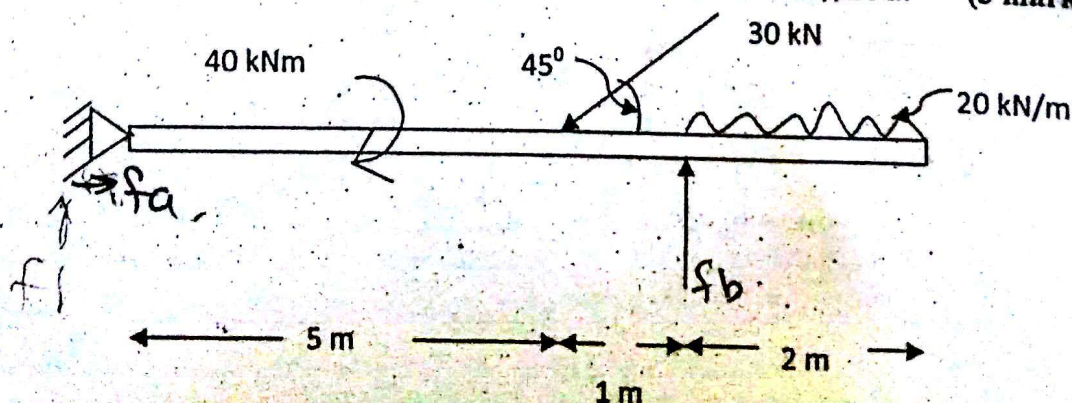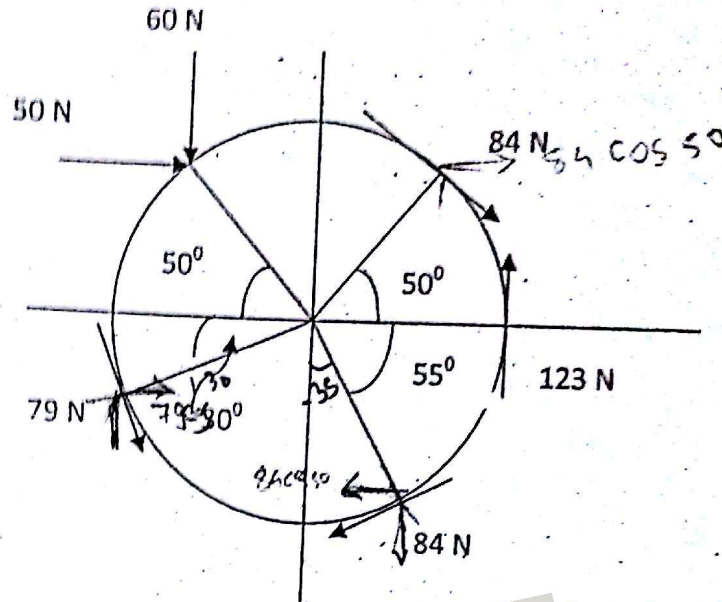

Figure 2

Q. 2 a) Find the resultant and its position of the force system as shown in figure 3. Radius=2.5 m.

(4 marks)

Figure 3

b) Find forces in the member of truss shown in figure 4.

(5 marks)

Figure 4

S
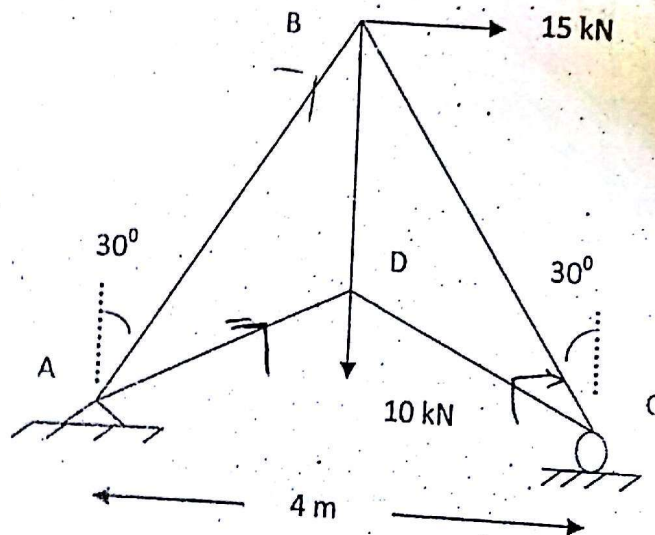
Government College of Engineering, Amravati

CLASS TEST 1 (Summer 2012)

Course Name: ENGG MECHANICS   Time: 1 Hr.   Max. Marks: 15

Course Code: CEU101

Instructions to Candidate

Assume suitable data wherever necessary and clearly state the assumptions made.

Q.1 Two cables AB and AC are attached to the top of a tower .The tension in the cable AC is 8KN .Determine the required tension T in the cable AB ,such that the net effect the two cable tensions is a downward force at point.A. Determine the magnitude R of this downward force. Refer fig.1   **3 Marks**

Q.2 Determine the reactions for beam shown in fig.2   **5 Marks**

Q.3 State the Varignon's theorem and principle of transmissibility.   **3 Marks**

Q.4 A 150×300 mm plate is subjected to different forces as shown in fig 3.Find the equivalent force - couple system through point D.   **4 Marks**

OR

Q.5 A bar AB, 12 m long, rest in horizontal position as shown in fig 4,on two smooth planes. Find distance at which a load P=100N is to be placed from B to keep the bar in equilibrium. Neglect weight of bar.   **4 Marks**

GOVERNMENT COLLEGE OF ENGINEERING AMRAVATI

(An Autonomous Institute of Government of Maharashtra)

Class test-I (SUMMER 2016)

Q.1 a) State and Explain   (4marks)

a) Free body diagram

b) Lami's theorem

c) Hinged support

d) Cantilever beam

b) A beam has been loaded and supported as shown in figure 1. Determine the reactions at the support points A and B.   (5 Marks)
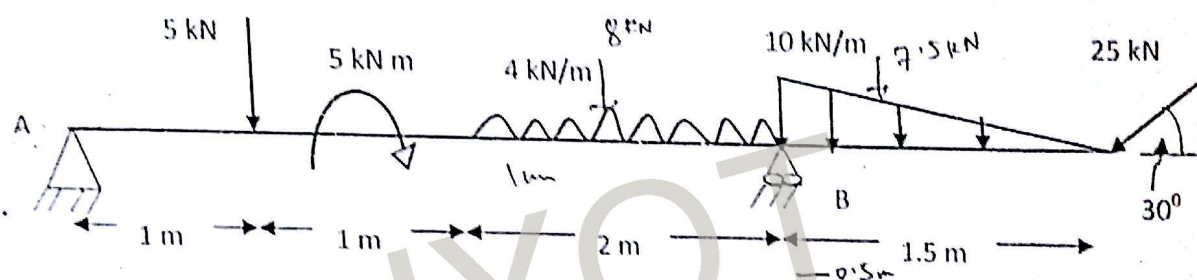

Figure 1

Q.2 a) A weight of 900 N is supported by two chains AC and BC of lengths 4 m and 3 m as shown in figure 2.Determine the tension in each chain   (3 Marks)
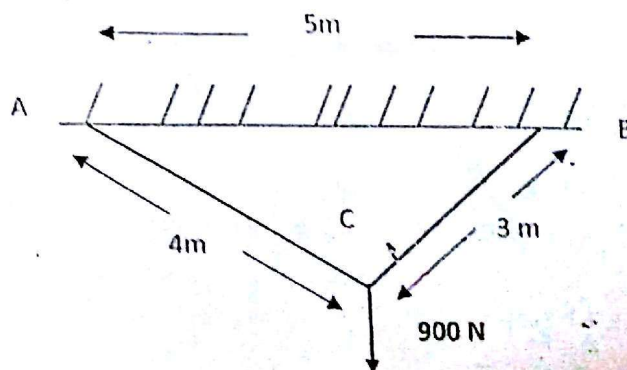

Figure 2

OR

b) A bar AB of weight 1 kN is hinged to a vertical wall at A and supported by a cable BD as shown in figure 3. Find the tension in the cable and magnitude and direction of reaction at the hinge.   (3 Marks)
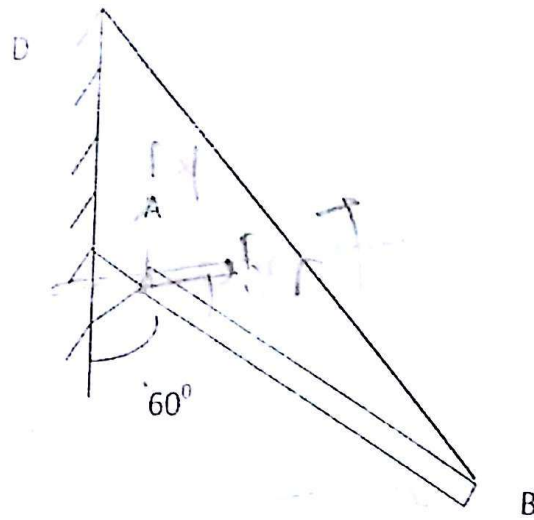
Figure 3

c) Determine the magnitude and direction of forces F_1 and F_2, shown in figure 4 when the resultant of the given force system is found to be 800 N along positive x-axis. (3 Marks)
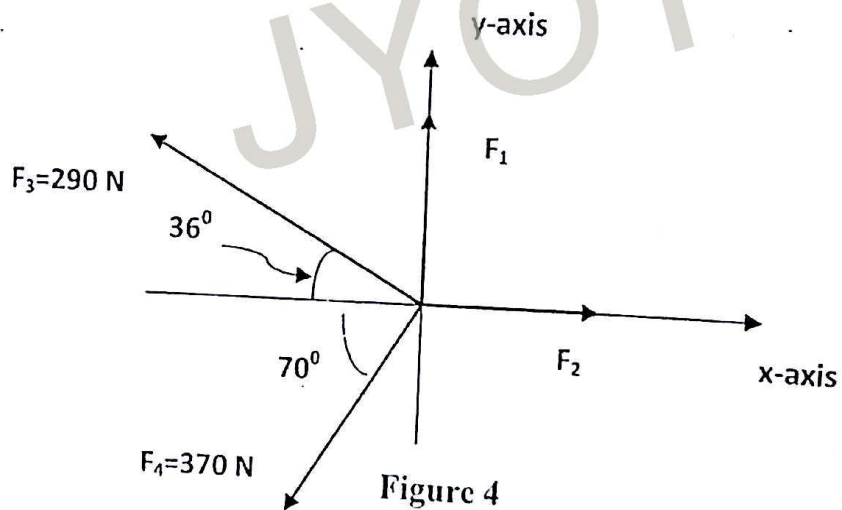

Figure 4

GOVERNMENT COLLEGE OF ENGIEERING AMRAVATI

(An Autonomous Institute of Government of Maharashtra)

Class test-I (WINTER 2016)

Subject code and name: CEU 101 (Engineering Mechanics)   **Maximum marks:** 15

Date: 19/09/2016   **Time:** 3:00-4:00 PM

Q.1 a) State and Explain   (4marks)

 a) Uniformly varying load

 b) Principle of moments

 c) Fixed support

 d) Simply supported beam

b) A beam has been loaded and supported as shown in figure 1. Determine the reactions at the support points A and B.   (4 Marks)
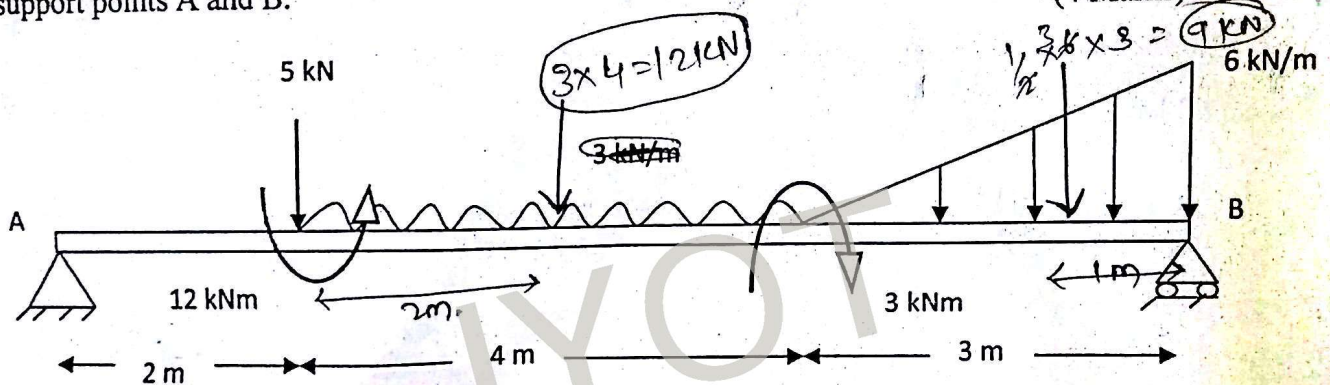

Figure 1

Q.2 a) Two spheres A and B of weight 1000 N and 750 N, respectively are kept as shown in figure 2. Determine the reactions at all contact points 1, 2, 3 and 4. Radius of sphere A= 400 mm and Radius of sphere B=300 mm.   (4 Marks)
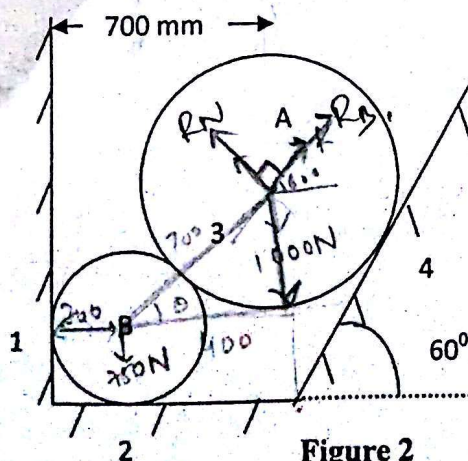

Figure 2

OR

b) Two rollers A and B of weight 50 N and 100 N are connected by flexible cable string AB. The rollers rest on two mutually perpendicular DE and EF as shown in figure. Find the tension in string and angle α that it makes with the horizontal when the system is in equilibrium. (4 Marks)

Figure 3

compulsory.

c) Determine magnitude and direction coplanar non concurrent force system shown in figure 4 (4 marks)
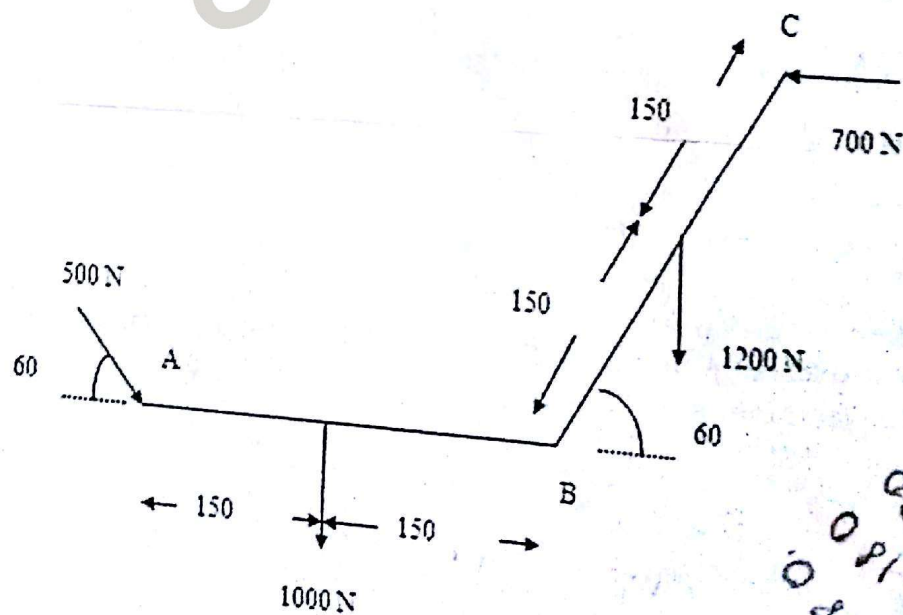(All dimensions is in mm.)

Figure 4