DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103

Mid SemesterExamination – Summer - 2018

Subject with Subject Code:- Engineering Mechanics (ME 202) **Sem.:- II**
Branch: Group A **Marks: 20**
Date:- 13/03/2018 **Time:- 1 Hr.**

Instructions:- Assume the appropriate data if not given

(Marks)

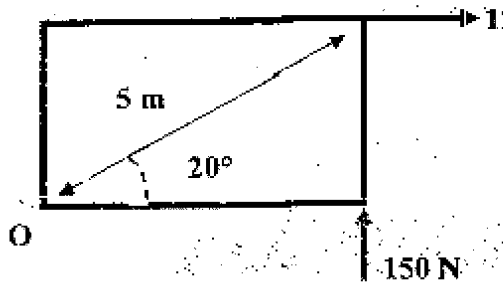
Q.No.1Multiple choice Questions (06)

I. The component of a Vector is

a) always less than its magnitude b) always greater than its magnitude

c) always equal to its magnitude d) none of these

II. What is the moment about point O?



a. 291 Nm

b. 219 Nm

c. 419 Nm

d. 491 Nm

III. Uniformly distributed load of 5 kN acts on a simply supported beam of length 10 m.

What are the reactions at end points of the beam?

a. 12.5 kN b. 25 kN c. 50 kN d. None of the above

IV. A 1 Kg of block is resting on a surface with coefficient of friction $\mu = 0.1$. A force of 0.8 N is applied to the block as shown in the figure. The friction force is:

a) Zero b) 0.8 N c) 0.89 N d) 1.2 N

V. For a five member perfect truss, the no of joints will be .....

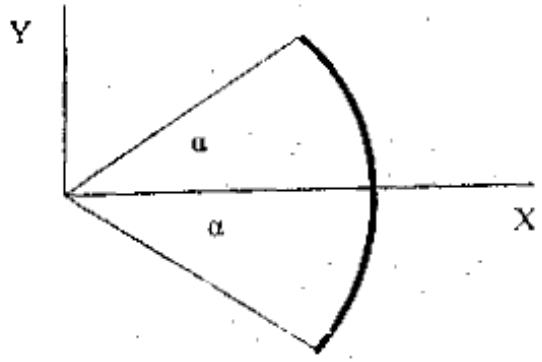
a) 7 b) 8 c) 4 d) 3

VI. For a rod made up of homogeneous material and having uniform thickness the location centre of gravity and centroid will have.....location.

a) Same b) Different c) outside d) None of these

Q.No. 2Attempt any one of the following: **(06)**

a.) Determine the centroid of the area of the sector shown in figure of radius R and central angle 2α.



b.)Forces 2, 3, 5, 3 and 2 kN respectively act at one of the angular points of aregular hexagon towards five other angular points. Determine themagnitude and direction of theresultant force.

Q.No 3.Attempt any two of the following **(08)**

A) State and prove Varignon's theorem.

B) Derive the relation between angle of friction and angle of repose.

C) What is the difference between perfect, deficient and redundant trusses?

*****End*****