THAKUR COLLEGE OF
ENGINEERING & TECHNOLOGY
(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai)
A - Block, Thakur Educational Complex,
Shyamnarayan Thakur Marg, Thakur Village,
Kandivali (East), Mumbai - 400 101.
Tel.: 6730 6000 / 6106 / 6107
Fax : 2846 1890
Email: tcet@thakureducation.org
Website : www.tcetmumbai.in • www.thakureducation.org
• Computer Engineering • Electronics & Telecommunication Engineering • Information Technology (w.e.f. 16-09-2011 for 3 years)

Term Test - I
Engineering Mechanics

Year/ Sem: F.E Sem I
Branch: All
Time: 10:00 am to 11:00 am

Date : 11/09/2014
Max. Marks: 20

Note :
Q 1 is compulsory
Attempt any 3 of remaining 4 questions.

Q 1 Fill in the blanks **[5]**

i) Friction on the wheel of a cycle acts _____.
(a) Forwards (b) backwards (c) upwards

ii) Hinge support consists of _____ reaction.
a) One b) Two c) Three d) None of the above

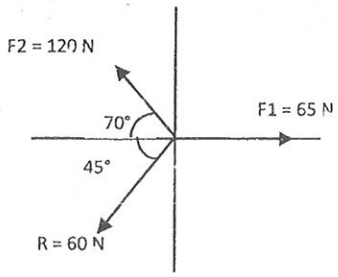
iii) $m = 2j - r$ equation shows the truss is_____.
a) Perfect b) Imperfect c) None of the above

iv) Four forces P, 2P, 3P, 4P act along the sides taken in order of square. The resultant force is ……..
a) 0 b) $2\sqrt{2}P$ c) 2P d) $\sqrt{5}P$

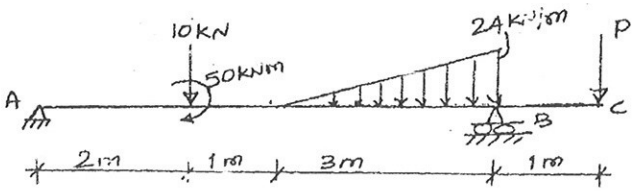
v) The truss is loaded only at the joints _____.
a) True b) False c) May be.

vi) ……is an extension of triangle law of forces for more than two forces.
a) Coulomb's Law b) Parallelogram Law c) Polygon Law d) None of the above

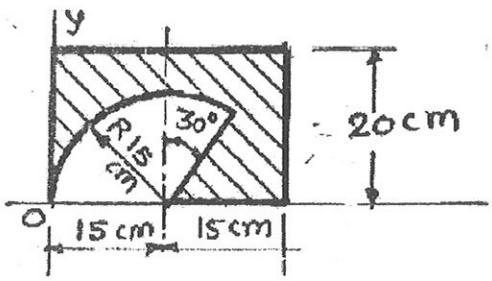
Q2 The resultant of the three forces is **60N** as shown in the figure. Two of the three forces are shown as **120N** and **65N** respectively. Determine the third force. (Magnitude and direction) **[5]**



Q3 Find analytically the support reaction at B and load P for the beam shown in figure if the reaction at support A is zero. **[5]**



Q.4 Find the centroid of the shaded area as shown in figure. [5]



Q.5 Determine the force 'P' to cause motion to impend. Take masses of blocks A and B as 8 kg and 4 kg respectively and the coefficient of sliding friction as 0.3. The force 'P' and rope are parallel to the inclined plane. Assume frictionless pulley. [5]