

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 07

B.Sc.(CS) (2013 & Onwards) (Sem.-4)

FUNDAMENTALS OF STATICS

Subject Code : BCS-402

Paper ID : [72318]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A**Q1. Answer briefly :**

- a) Define equilibrium.
- b) Define Hook's law.
- c) State Polygon law.
- d) Define moment of force about a line.
- e) Define couples.
- f) Define friction and kinds of friction.
- g) What is centre of gravity?
- h) What is the centre of gravity uniform triangular lamina?
- i) Define forces in three dimensions.
- j) Define Wrenches.

SECTION-B

- Q2. State and prove parallelogram law of forces. Find the magnitude and direction of the resultant of two forces acting at a point at an angle α .
- Q3. State and prove Lamis theorem and also discuss converse of the Lamis theorem.
- Q4. The resultant of forces P and Q is R; If Q be doubled, R is double; if Q be reversed, R is again doubled, show that $P^2 : Q^2 : R^2 :: 2:3:2$.
- Q5. Find the least force necessary to drag a body along a rough horizontal plane.
- Q6. ABC is an equilateral triangle of side 40 cms. Weights 5, 1, kgs are places at points A, B and C respectively and weights 2, 4, 6 kgs are placed at the middle points of BC, CA and AB. Find the distance of their centre of gravity from B.
- Q7. Discuss in Detail :
- a) Centre of gravity of solid hemisphere.
 - b) Centre of gravity of a hollow hemisphere