Exam Seat No:_____ Enrollment No:_____

C.U.SHAH UNIVERSITY

Wadhwan City

Subject Code 4TE02BCS1 **Summer Examination-2014** **Date: 06/06/2014**

Subject Name Basics of Civil & Structural Engineering

Branch/Semester:- B.Tech/II **Time:02:00 To 5:00**

Examination : Regular

Instructions:-

(1) Attempt all Questions of both sections in same answer book / Supplementary

(2) Use of Programmable calculator & any other electronic instrument is prohibited.

(3) Instructions written on main answer Book are strictly to be obeyed.

(4) Draw neat diagrams & figures (If necessary) at right places

(5) Assume suitable & Perfect data if needed

SECTION-I (Basic of Civil Engineering)

Q-1	(a)	Explain Magnetic declination and Dip	2
	(b)	Differentiate between H.I. & rise fall system	2
	(c)	What is Line of collimation?	1
	(d)	What is seasoning of timber?	1
	(e)	Define Isogonic and Agonic line.	1
Q-2	(a)	Explain fundamental principles of surveying.	5
	(b)	Explain with sketch the use of line ranger.	5
	(c)	Differentiate hydraulic lime and fat lime.	4

OR

Q-2	(a)	What is closing error in a compass traverse? How is it adjusted graphically?	5
	(b)	Discuss different types of ferrous metals.	5
	(c)	Compare prismatic compass and surveyors compass.	4
Q-3	(a)	What is ranging? Enumerate various methods of ranging? Explain with neat sketch the procedure for indirect ranging?	7
	(b)	Describe briefly the seven elements involved in Remote sensing process.	7

OR

Q-3	(a)	What are contours? Discuss its characteristics with the help of neat sketches.	7
	(b)	Enlist different types of cement. explain ingredients of ordinary Portland cement	7

Section - II (Basic of Structural Engineering)

Q-4 (a) Define Scalar and Vector Quantities with Example. 2

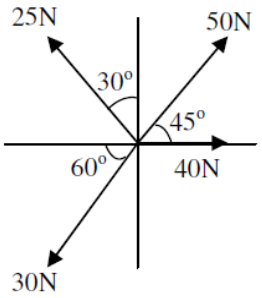
(b) Define Resultant force and equilibrant force. 2

(c) Force is defined by its magnitude and two other parameters. Name them. 1

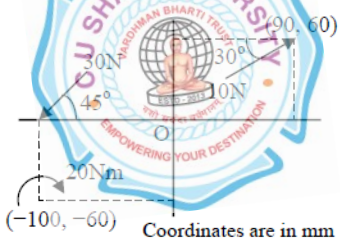
(d) Resultant of two forces can be found using which Law? 1

(e) State Varignon's theorem 1

Q-5 (a) Determine magnitude and direction of resultant force of the force system shown in fig. 5



(b) Some forces are acting on a rigid body as shown in figure. Find the resultant of the given force system, in terms of magnitude and direction. Find the location of the Resultant with respect to point O. 5



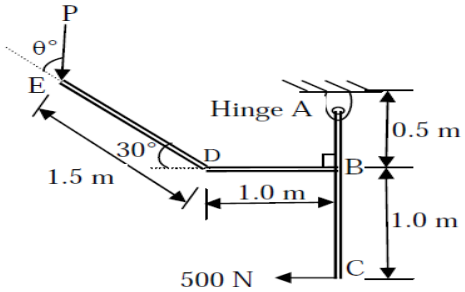
(c) Differentiate : Kinetics and Kinematics 4

OR

Q-5 (a) Find the resultant force of the following forces. 5

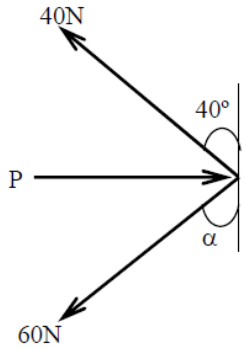
A. 60 N force due south
B. 40 N force from East
C. 25 N force due south-East
D. 80 N force 30° West of south

(b) A mechanism shown in figure. is hinged at A, is acted by horizontal force of 500N at C. Determine least force 'P' required at E for equilibrium of the mechanism and corresponding angle 'θ'. 5

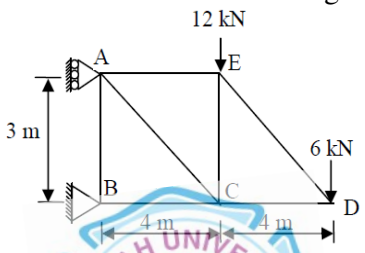


(c) Differentiate Moment and Couple. 4

Q-6 (a) State Lami's Theorem. Determine the force P required to keep the system as shown in Figure. in equilibrium. 7

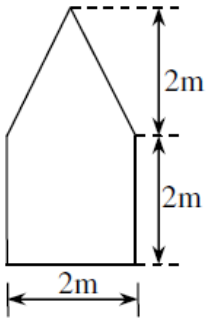


(b) Calculate member forces in a plane truss loaded as shown in figure., using method of section. Tabulate member forces showing magnitude and nature. 7

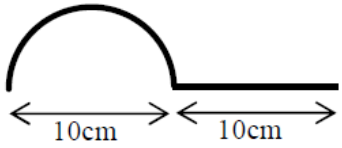


OR

Q-6 (a) What is moment of inertia of plane area and also Determine the moment of inertia of the section shown in figure, about an axis passing through centroid and parallel to the base. 7



(b) Determine the centroid of wire; bent as shown in Fig. 7



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