C.U.SHAH UNIVERSITY
Summer Examination-2018

Subject Name : Basics of Civil & Structural Engineering

Subject Code : 4TE02BCS1   **Branch: B.Tech (All)**

Semester : 2   Date : 07/05/2018   Time : 10:30 To 01:30   Marks : 70

Instructions:
(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1   Attempt the following questions: **(14)**

   a) Define Surveying.

   b) Convert the following WCB= 250° into RB.

   c) Write different methods of contouring.

   d) Enlist various types of lime.

   e) What are the ingredients of cement?

   f) Write various types of stones.

   g) Expand GIS and GPS.

   h) Define statics.

   i) List the Fundamental principle of mechanics.

   j) State the Law of Parallelogram of Forces.

   k) Write assumptions made in the analysis of plane truss.

   l) Define center of gravity.

   m) What is radius of gyration?

   n) What is parallel axis theorem?

Attempt any four questions from Q-2 to Q-8

Q-2   Attempt all questions

   (a) Discuss various classification of survey in detail.   **(8)**

(b) A 20m chain was found to be 8cm too long at the end of days work after measuring **(6)** 4000m. If the chain was correct before the commencement of work, find the correct length of the line.

Q-3 **Attempt all questions**

(a) The following are the fore bearing and back bearing of the lines of a closed traverse. **(10)** Calculate the interior angles of the traverse.

Line	AB	BC	CD	DE	EA
Fore Bearing	150°15′	20°30′	295°45′	218°	120°30′
Back Bearing	330°15′	200°30′	115°45′	38°	300°30′

(b) Enumerate different types of conventional symbols used in surveying with a neat **(4)** sketch.

Q-4 **Attempt all questions**

(a) Enumerate the various methods of seasoning of timber in detail. **(6)**

(b) Write short note on aluminium with its uses and properties. **(4)**

(c) What are the types of concrete? Explain the properties of concrete. **(4)**

Q-5 **Attempt all questions**

(a) What are the key components of GIS and draw its essentials of GIS. **(6)**

(b) What are the three segments of GPS? Write the uses of GPS. **(4)**

(c) Enumerate the various ceramic products. Write importance of ceramics as a building **(4)** construction material.

Q-6 **Attempt all questions**

(a) A mechanism shown in figure.1 is hinged at A, is acted by horizontal force of 500N **(8)** at C. Determine least force 'P' required at E for equilibrium of the mechanism and corresponding angle 'θ'.

(b) Determine magnitude and direction of resultant force of the force system shown in **(6)** below figure.2.
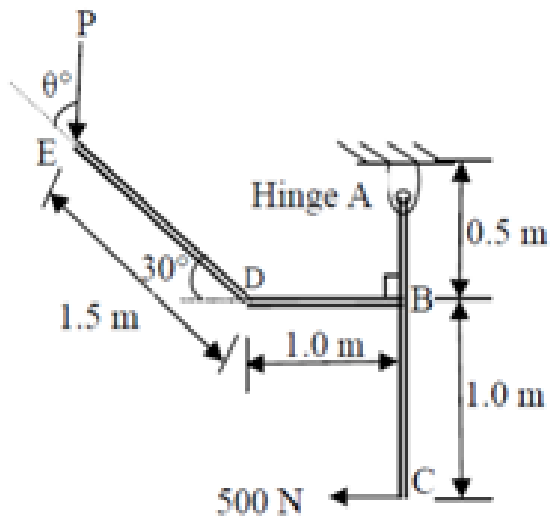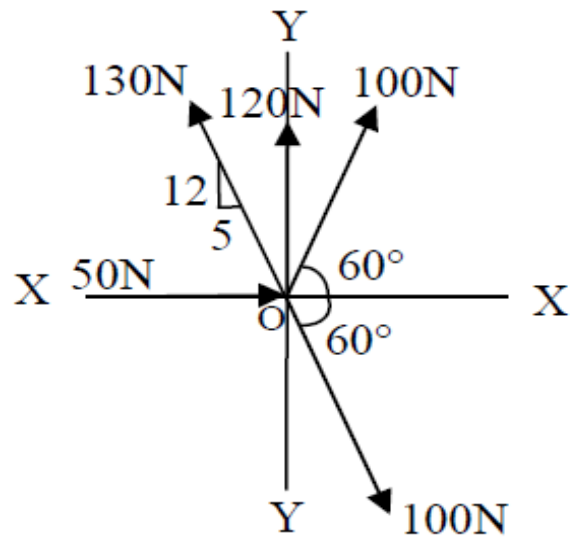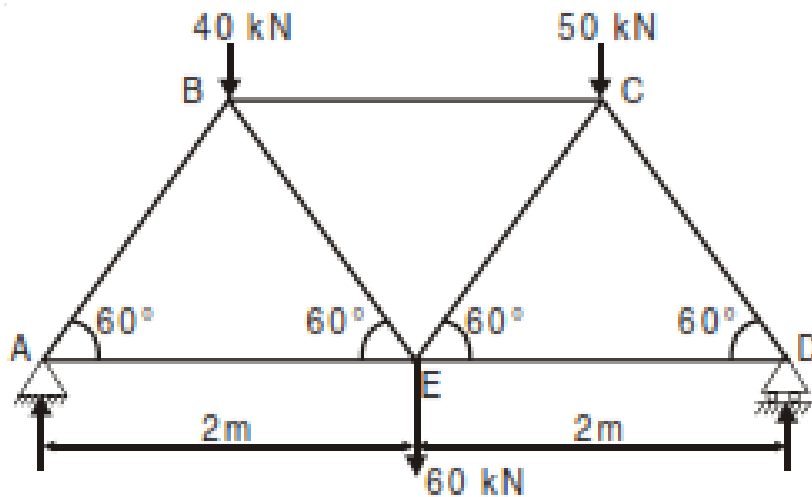
Figure.1.   **Figure.2.**

Q-7   **Attempt all questions**

   (a) Determine the forces in all the members of the truss shown in Figure. All inclined   **(8)**
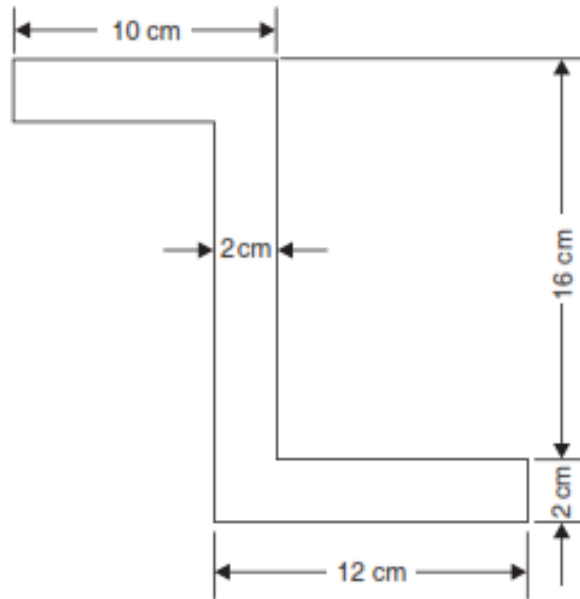   members are at 60° to horizontal and length of each member is 2 m.

   (b) Explain with sketches perfect truss and imperfect truss.   **(4)**
   (c) What are the uses of truss?   **(2)**

Q-8   **Attempt all questions**

   (a) Find centroid of a section shown in the figure.   **(6)**

(b) Determine the I_{YY} of section shown in Figure. **(8)**