BE - 204

B.E. I & II Semester Examination, December 2012

Basic Civil Engineering and Engineering Mechanics (Grading System)

Time : Three Hours

Maximum Marks : 70

Note : *Attempt any five questions. Internal choice is given each question. Assume suitable data if required.*

1. a) What is concrete? Describe the process of preparation of concrete.
   b) What are the various field tests applied on bricks to judge the quality of bricks?

OR

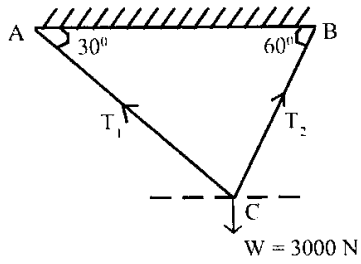
2. a) Draw the neat sketches of the following:
      i) King post roof truss. ii) Open Newel stairs.
   b) Explain the various elements of building construction.
3. a) What are the various methods of plane table surveying? Explain any two in detail.
   b) Explain the EDM method in detail.

OR

4. a) Describe any two methods of measuring horizontal angle with theodolite.
   b) The following consecutive readings were taken with the help of dumpy level
   1.905, 2.655, 3.905, 4.025, 1.965, 1.705, 1.595, 1.265, 2.545, 2.005, 3.145.
   The instrument was shifted after the fourth and seventh readings. The first reading was taken on the staff held on B.M. of R.L. 100.000 m. Rule out a page of level field book, enter the above readings there on. Calculate the R.Ls. of the points and apply the arithmetic check.
5. a) Define 'contour'. What are the various characteristics of contour.
   b) The following perpendicular offsets were taken at 20 m intervals from a base line to an irregular boundary line.
   5.9, 12.4, 16.5, 15.3, 18.4, 20.9, 24.9, 21.8 and 19.2 meters. Calculate the area enclosed between the base line, the irregular boundary line and the first and last offsets by-
      i) Trapezoidal Rule ii) Simpson's Rule

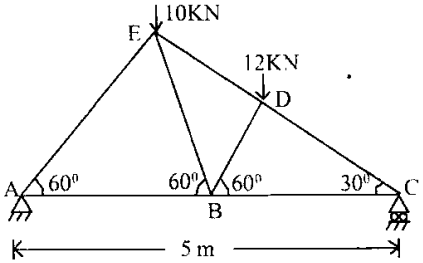
OR

6. a) Explain the term 'Remote sensing' in detail. What are the various applications of remote sensing.
   b) Explain the following in detail
      i) Survey stations. ii) Methods for measuring the area and volume.
7. a) Define various types of forces with the help of sketches.
   b) A weight of 3000 N is supported by two chains AC and BC as shown in Fig. below. Determine the tension in each chain.

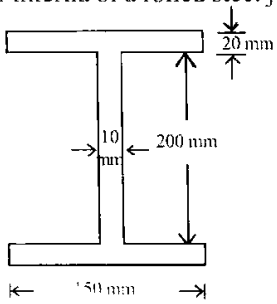


OR

8. a) State and explain the Tringle law and polygon law of forces.
   b) Determine the forces in all the members of the truss loaded and supported as shown in Fig. below.



9. a) State parallel and perpendicular axis theorems. Explain any one in detail.
   b) Find the moment of intertia of a rolled steel joist girder of symmetrical I section shown in Fig. below.



OR

10. a) Define various types of beams and loadings with the help of neat sketches.
    b) Draw the shear force and bending moment diagram for the beam loaded and supported as shown below.