Roll. No…… **1211007**

B.Tech / Integrated (M.Tech & MBA) 1st Sem Examination

Dec.2012 – Jan.2013

Elements of Civil Engineering

Subject Code – CEL-101

Time Allowed: 03 hours. Maximum Marks: 100

Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

Note: Attempt any five questions and all questions carry equal marks.

SECTION A

1. a) What do Civil Engineers do? (4)
   b) What is the difference between a Civil Engineer and an Architect? (4)
   c) Write a short Note on: Civil Engineering History (6)
   d) Name Basic components of any Building Structure. (6)

2. a) What is a set-back? (4)
   b) Explain Light Plane. (6)
   c) What is Floor Space Index? (4)
   d) What is the importance of Bye-laws? (6)

3. a) How, presence of termites can be detected on a building site? (4)
   b) A Residential Plot of area 600 m^2 in a City Area with permissible F. S. I. of 2 is to be constructed.
      i) What is the maximum built-up area which can be put up on the Plot? (3)
      ii) How this built-up area can be consumed? (3)

   c) Explain Composite Structure with the help of a neat Sketch (5+5)

SECTION B

4. a) What is Topographical Surveying? (4)
   b) Name Classifications based on Surveying Instruments used and Methods Employed. (6)
   c) Explain with sketches the Principle of Surveying: To Fix or to Locate New Points or Stations by at least two independent measurements or processes. (10)

5. a) What are the uses of Surveying? (6)
   b) Explain Plasticity. (4)
   c) What is an Anisotropic Material? (2)
   d) Explain assumptions made in Classic Theory of Elasticity for the purpose of Analysis of Structures. (4)
   e) Why factor of safety is essential? (4)

6. a) Discuss Quality Control and Monitoring of Strength Criteria of materials in construction and fabrication works. (7)
   b) Explain different types of beams with the help of neat sketches. (4)
   c) In a tensile test of a mild steel bar specimen of diameter 20 mm, yield point was observed at a load of 84.45 kN and the specimen attained a maximum load of 155.75 kN, but it failed at a load of 73.85 kN. Determine:
      i) The stress at the yield point (3)
      ii) Ultimate Stress (3)
      iii) Average stress at the rupture when diameter of the neck is 10.75 mm. (3)

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