TERTIARY AND VOCATIONAL EDUCATION COMMISSION

COMMON WRITTEN EXAMINATION – 2020/ 2021

Diploma in Quantity Surveying
NVQ Level 05 – Semester I

Construction Technology - I	**F45C002M03**	**Three Hours**

Answer any 05 questions including the question 1

1. i) Explain the purpose using reinforcement in concrete.
   ii) What is meant by "Segregation" in concrete?
   iii) What is the standard size of the mould that is used for cube testing?
   iv) Name four (04) information that you can collect from the bar schedule of a structural drawing.
   v) Draw a cross section of a simple beam and name the parts.
   vi) What is "Wall plate"? Write down the function of it. .
   vii) State four (04) defects associated with wall plastering.
   viii) Name three (03) field tests that you do to assess the quality of bricks.
   ix) Name four (04) types of fittings that are used in doors / windows.
   x) Explain four (04) advantages of having a ceiling in a building.

   (02 x 10 = 20 marks)

2. i) Describe "Temporary work" at construction sites. Some temporary works need to be established before the actual construction commences and some are required while construction is moving on. State three (03) examples for temporary work under each of the above situations and the places where they are required. (08 marks)
   ii) Among the needs at the initial stages in construction, "Earthwork support" may be essential.
      a) Explain the need of it. (02 marks)
      b) What are factors to be considered for the selection of suitable shoring type? (03 marks)
      c) Give examples for two (02) types of shoring; Draw a neat sketch for one of them and name the parts. (07 marks)

3. Concrete is the main component of most of the constructions in the world. To maintain the quality of concrete, various actions are taken during the whole process from material selection, mixing and to the end.
   i) What is meant by plain concrete? Mention three (03) properties of plain concrete and suggest suitable places to lay plain concrete. (06 marks)
   ii) Differentiate and discuss advantages and disadvantages of hand mixing and machine mixing. (04 marks)
   iii) Write down four (04) defects caused by poorly mixed concrete. (03 marks)
   iv) It is essential to maintain the uniformity of the mix all the time. Explain a test to check the uniformity / workability of concrete. (03 marks)
   v) Describe the functions of "Admixtures". State two (02) types of admixtures and give examples for each for site conditions where they are used. (04 marks)

4. i) With the expansion of projects in Highways, Buildings, Water supply & Drainage, Irrigation and many other major and minor construction works, builders should seriously consider the "Sustainable Development" in construction. Discuss the methods, ways, benefits and challenges in this context, highlighting your views. (15 marks)
   ii) Explain "Load bearing walls" and "Non-Load bearing walls" (05 marks)

5. i) Dampness in buildings makes damages to the appearance and structure. Precautions should be taken to prevent it. Describe four (04) places where dampness can occur. What are the measures to be taken during construction to prevent moisture entering? (06 marks)
   ii) Cracks are the symptoms of weakening the strength and quality. If there are minor and major cracks observed on a wall, what can be the causes in each case? (05 marks)
   iii) Name three (03) types of stair cases; what are the factors to be considered to decide the type of stair case? Draw a sketch of a stair case and name parts; (06 marks)
   iv) Describe the role of coarse aggregate and fine aggregate in Concrete. (03 marks)

6. Write short notes on the following; Draw sketches where it is necessary: (05 X 04 = 20marks)
   i) Use of pre cast concrete products
   ii) Raft foundation
   iii) Seasoning of Timber
   iv) Sieve analysis/ gradation curve
   v) Causes for foundation failure