VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

Winter Semester 2019-20

Continuous Assessment Test – II

Programme Name & Branch: B.Tech, Civil Engineering

Course Name & Code: CLE 2007, Advanced Concrete Technology

Class Number: VL2019205006004 **Slot: D1 + TD1** **Exam Duration: 90 Min**

Maximum Marks: 50 **Faculty Name: S. Bala Murugan** **Exam Mode: Open notebook**

General instruction(s):

IS 10262 – 2009, 1-3 pages only allowed &IS 456-2000 is allowed

Answer all the questions with neat sketch where it is required.

1. In VIT Vellore campus, GDN building was constructed in 1985. The Management wishes to construct a floor over GD Naidu building. As a concrete engineer, give a report inclusive of standard value and available methods to evaluate the quality and strength of the existing structure. **(15 Marks)**

2. In the contract specification, M30 grade concrete is recommended for column and beam construction in the proposed New bus stand construction. As a concrete engineer, prepare the mix proportion required for the site. The materials properties are given below. Specific gravity of cement 3.1, fine Aggregate is 2.4, Coarse aggregate is 2.7, GGBS is 1.8, Chemical admixture is 1.14, Zone II fine aggregate is used. Slump value is 125mm. Replacement of cement with GGBS is 30%. **(20 Marks)**

3. Government of India is motivating the researchers to carry out the experimental work in sustainable concrete (replacement of cement with Industrial byproducts up to 50%). As a concrete specialist, write a report stating that, what type of durability problem will cause in the concrete at fresh and hardened stage. Also discuss with standard values, the tests to be conduct before using the concrete in site. **(15 Marks)**