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University Examinations 2013/2014

SECOND YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL
ENGINEERING

ECV 0231: CONCRETE TECHNOLOGY II

DATE: APRIL 2014

TIME: 1 ½ HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE – (30 MARKS)

- (a) State any two common causes of segregation in concrete works. (2 Marks)
- (b) Discuss any three methods of compacting concrete by hand. (6 Marks)
- (c) State any three reasons as to why we provide cover to reinforcement in columns, beams, foundations e.t.c. (3 Marks)
- (d) State any three requirements of formwork. (3 Marks)
- (e) State any four properties of hardened concrete. (4 Marks)
- (f) What do you understand by the term ‘curing’ in concrete works? (2 Marks)
- (g) State any four advantages of pre-cast concrete over ‘cast insitu’ concrete. (4 Marks)
- (h) Discuss any three factors that are considered during any plant lay out. (6 Marks)

QUESTION TWO – (15 MARKS)

- (a) What is creep of concrete? (2 Marks)
- (b) Explain the significance of creep of concrete. (3 Marks)
- (c) State two factors that affect the amount of creep in concrete. (4 Marks)
- (d) How is creep of concrete taken care of in reinforced concrete structures? (6 Marks)

QUESTION THREE – (15 MARKS)

- (a) Why is it necessary to cure concrete? (2 Marks)
- (b) Explain how you would ensure sufficient curing of concrete in the following cases
 - i. In walls (reinforced) (2 Marks)

- ii. In large open concrete floors (mass) (5 ½ Marks)
(c) How much should be the duration of curing concrete in each case. (5 ½ Marks)

QUESTION FOUR – (15 MARKS)

- (a) What is formwork? (2 Marks)
(b) State two basic forms of formwork. (2 Marks)
(c) Use sketch to illustrate a simple formwork and name any four of its parts. (6 Marks)
(d) Discuss the process of erecting form work. (5 Marks)

QUESTION FIVE – (15 MARKS)

- (a) State the basic principle of prestressing concrete. (2 Marks)
(b) Discuss any three precautions observed when transporting and handling precast units. (6 Marks)
(c) State the difference between ‘pre cast’ and cast insitu concrete. (3 Marks)
(d) State any eight forms of pre cast units. (4 Marks)