

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2082 Chaitra

Exam.	Regular (New Course)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / I	Time	1½ hrs.

Subject: - Concrete Technology (ENCE 205)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.



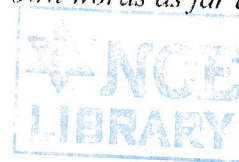
1. a) Explain the basic requirements of coarse and fine aggregates in concretes. [2+2]
b) Explain why the information on grading of aggregate is necessary. [2]
2. a) Discuss on segregation and bleeding effects during concreting. [2]
b) Explain the importance of curing of concrete structures. [2]
3. a) Write the procedure of DoE method for mix design of concrete. [4]
b) Why trial mixes are important before concreting in structures? How they are different from nominal mix? [1+1]
4. a) Explain the effect of creep in concrete. [2]
b) Explain the effect of size of aggregate on strength of concrete. [2]
c) Explain the process of concrete maturity. [2]
5. a) Explain quality control and quality assurance in concrete constructions. [2]
b) Explain the procedure of testing of concrete for compressive strength. [3]
6. Discuss on emerging concrete technologies. [3]

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1. a) Explain the gradation of coarse aggregates based on their shapes and their impact in the strength of concrete. [3]
b) What is bulking of sand? Describe the method of determination of fineness modulus of coarse aggregates. [1+2]
2. Explain the role of water cement ratio in the strength of concrete. Explain segregation and bleeding of concrete and their effects. [2+2]
3. Explain DoE method for concrete mix design. [6]
4. Explain load deformation behavior of hardened concrete. Describe shrinkage and creep in concrete with the help of sketches. [2+2+2]
5. Describe non-destructive tests for concrete and its applications in concrete structures. [2+3]
6. Describe emerging technologies in concrete. [3]

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Subject: - Concrete Technology (ENCE 205)

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1. a) List the constituents of concrete and their function. [2+2]
b) Explain concrete as three phase system. [2]
2. What are the methods for testing workability of concrete? Briefly explain the method of slump test. [2+2]
3. Differentiate between nominal mix and design mix of concrete. Explain IS Code method for mix design of concrete. [2+4]
4. Explain the effect of gel/space ratio in the strength of concrete. Describe the shrinkage and creep in concrete. [2+2+2]
5. How is compressive and tensile strength of concrete determined in laboratory? Explain Schmidt rebound hammer test for concrete. [3+2]
6. Explain ferro-cement concrete with their applications. [3]
