

FACULTY OF ENGINEERING AND TECHNOLOGY

S.E.(Civil) Examination - Dec- 2014

Concrete Technology (Revised)

[Time: THREE Hours]

[Max. Marks: 80]

"Please check whether you have got the right question paper."

N.B

- 1) Q.1 and Q.6 are compulsory. Attempt any two questions from each section from remaining
- 2) Draw neat sketches wherever necessary.
- 3) Figure to the right indicate full marks.

SECTION A

- Q.1 Answer the following questions (any five) 10
- a) What is pozzolona? What are the different types of pozzolonic materials?
 - b) Define deleterious substance and soundness of aggregate.
 - c) Define admixture. What are the modern concrete admixture & construction chemicals?
 - d) Define accelerator and retarder.
 - e) What are the destructive and non-destructive testing of concrete?
 - f) What is curing? What are the different methods of curing?
 - g) Define strength of concrete.
 - h) Define form work. What are the design loads of form work?
 - i) What is micro cracking?
 - j) Define modulus of elasticity, creep, shrinkage and swelling of concrete.
- Q.2 a) Explain manufacturing process of Portland cement. 05
b) Explain in brief the hydration of cement. 04
c) Explain different types of cement. 06
- Q.3 a) Define aggregate. Explain the physical properties of aggregates. 07
b) Find gel/space ratio and theoretical strength of sample of concrete with 600gm of cement with 0.45 w/c ratio, on full hydration and at 6.5% hydration. 08
- Q.4 a) What is workability? Explain slump test with neat sketch to determine the workability of concrete. 08
b) Why compaction of concrete essential? Explain the method of compaction by vibration. 07
- Q.5 Write a short note on (any three) 15
- a) Principle of design for formwork.
 - b) Alkali-aggregate reaction.
 - c) Pull out test.
 - d) Quality of water used for mixing the concrete.
- SECTION B
- Q.6 Answer the following questions (any five) 10
- a) What is mix design?
 - b) What is meant by batching?
 - c) What is mixing of concrete? What are the different types of mixtures used for mixing?
 - d) What is polymer concrete?
 - e) What is high density concrete? Where it can be used?
 - f) What do you mean by repair? What are the common types of repair?
 - g) Define permeability and durability.
 - h) What is roller compaction concreting?
 - i) How chemical attack and acid attack and aid attack will occur on concrete structure?
 - j) What are the two stages considered in the repairing of cracks?
- Q.7 a) What is light weight concrete? Explain with its types and application. 08
b) Explain pumping of concrete with neat sketch. 07
- Q.8 a) Explain the terms mean strength, variance SD and coefficient of variance. 05
b) Discuss the ACI method of mix design. 05
c) What are the factors affecting high strength concrete by ACI method? 05
- Q.9 a) Explain sulphate attack by sea water and chloride attack. 07
b) Explain in detail under water concreting and ready mixed concrete. 08
- Q.10 Write short notes on (any three) 15
- a) Statical quality control.
 - b) Symptoms and diagnosis of distress.
 - c) Mechanism in corrosion of reinforcement.
 - d) Self compacting concrete.