



**B.E DEGREE EXAMINATIONS: NOV/DEC 2014**

(Regulation 2013)

Third Semester

**CIVIL ENGINEERING**

U13CET305: Concrete Technology

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. The setting and hardening of cement after addition of water is due to
  - a) the presence of gypsum
  - b) the binding action of water
  - c) the hydration of some constituent compounds of cement
  - d) evaporation of water
2. In '43 grade cement' 43 stands for .....
3. An admixture
  - a) is a basic ingredient of concrete
  - b) offers improvement not economically attained by adjusting mix proportions
  - c) Accelerates the initial setting of concrete
  - d) is a substitute for good concrete practice
4. Addition of pozzalonic admixture results in .....resistance to sulphate attack
5. A concrete having a slump of 70mm is termed as
  - a) dry
  - b) semi plastic
  - c) plastic
  - d) flowing
6. The separation of coarse aggregate from mortar during transportation of concrete is termed as .....
7. The presence of common salt in sand results in
  - a) corrosion of reinforcement
  - b) Scaling
  - c) pitting
  - d) porous concrete
8. ....is caused by the chemical reaction between sulphate ions and hydration products

9. Aerated concrete is produced by the addition of
- a) Copper sulphate
  - b) Aluminium powder
  - c) Sodium silicate
  - d) Zinc sulphate
10. Vacuum concrete is obtained by vacuum treatment of fresh concrete involving the removal excess .....and ..... by suction

**PART B (10 x 2 = 20 Marks)**

**(Not more than 40 words)**

- 11. What are Bogue's compounds?
- 12. How do the shape and size affects the workability of concrete?
- 13. What is admixture?
- 14. What are air entraining agents?
- 15. What are the different methods of curing?
- 16. How tensile strength of concrete is assessed indirectly?
- 17. What are the factors which influence corrosion?
- 18. What measures are suggested by IS456 2000 to ensure durable concrete?
- 19. What is the difference between ferrocement and fibre reinforced concrete?
- 20. What is ready mixed concrete?

**PART C (5 x 14 = 70 Marks)**

**(Not more than 400 words)**

**Q.No. 21 is Compulsory**

21. Discuss in detail the properties and applications of any four special concretes.
22. a) (i) Briefly explain the various types of cements used indicating their use for different applications
- (ii) Describe the test procedure to determine the compressive strength of cement

**(OR)**

- b) What are the various tests to be done on coarse and fine aggregate? Describe the sieve analysis procedure to know the suitability of fine aggregate for manufacturing of concrete

23. a) List out various admixtures and explain their role in concrete at fresh and hardened states.

**(OR)**

- b) State and explain the admixtures used for improving workability and durability of concrete

24. a) Explain the factors affecting the workability of concrete and explain any two methods of measuring the workability of concrete.

**(OR)**

- b) Discuss about the essential properties of hardened concrete and explain how they are determined

25. a) (i) What is alkali – silica reactivity (ASR)? List the factors that promote alkali aggregate reaction.  
(ii) Discuss the behavior of concrete subjected to high temperature and fire

**(OR)**

- b) (i) Discuss the methods by which impermeability of concrete can be improved  
(ii) Describe the remedial measures and their efficiencies against corrosion of steel in RCC structures

\*\*\*\*\*