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**Question Paper Code: 41312**

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015.

Third Semester

Civil Engineering

14UCE303 - ENGINEERING GEOLOGY

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

(Use of IS 10262:2009 and IS 456:2000 code books are permitted)

PART A - (10 x 1 = 10 Marks)

- In the manufacture of cement, the dry or wet mixture of calcareous and argillaceous materials is burnt at a temperature between
  - 900°C to 1000°C
  - 1000°C to 1200°C
  - 1200°C to 1500°C
  - 1500°C to 1600°C
- To prevent segregation, the concrete should not be thrown from a height of more than
  - 0.5 m
  - 1 m
  - 1.5 m
  - 2 m
- The minimum thickness of a wall in stone masonry should not be less than
  - 100 mm
  - 200 mm
  - 350 mm
  - 450 mm
- The lowest part of a structure which transmits the load to the soil is known as
  - Super – structure
  - Plinth
  - Foundation
  - Basement

5. Distemper is
  - (a) a paint consisting of powdered chalk, pigments, and water
  - (b) a water proofing agent
  - (c) a paint consisting of coloured cement and water
  - (d) a drying agent
  
6. A flexible material used for Damp proof Course is
 

(a) Bitumen sheeting	(b) Plastic Sheetting
(c) Mastic asphalt	(d) Cement concrete
  
7. Deep and wide cracks in concrete members can be repaired by
 

(a) Guniting	(b) Grouting	(c) Epoxy injecting	(d) Mortar replacing
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8. For scaling cracks in concrete structures by using epoxy, the minimum routing should be
 

(a) 20 mm	(b) 15 mm	(c) 9 mm	(d) 6 mm
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9. Which one of the following is not an excavating and moving type of an equipment?
 

(a) Bull dozer	(b) Clam shell	(c) Scraper	(d) Dump truck
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10. Grader is mainly used for
 

(a) Trimming and finishing	(b) Shaping and finishing
(c) Finishing and shaping	(d) finishing, shaping and trimming

PART - B (5 x 2 = 10 Marks)

11. List out some of the construction chemicals commonly used.
12. What are the requirements of good floor?
13. Define air conditioning.
14. Give some repair technique followed in rehabilitation of structures.
15. On what basis you will select the equipment for the construction?

PART - C (5 x 16 = 80 Marks)

16. (a) Design a Indian standard method of concrete mix design  
Design Stipulations:

(i) Grade designation : M30

(ii)	Type of cement	: OPC 43 grade confirming to IS 8112
(iii)	Maximum nominal size of Aggregates	: 20 mm (Angular)
(iv)	Minimum cement content	: 350 kg/m <sup>3</sup>
(v)	Maximum water cement ratio	: 0.50
(vi)	Workability	: 25 - 50 mm (slump)
(vii)	Exposure condition	: Moderate
(viii)	Degree of supervision	: Good
(ix)	Maximum cement content	: 450 kg/m <sup>3</sup>
(x)	Chemical admixture	: Not recommended
(xi)	Specific gravity of cement	: 3.15
(xii)	Specific gravity of Coarse aggregate	: 2.68
(xiii)	Fine aggregate	: 2.65
(xiv)	Water absorption	
	Coarse aggregate	: 0.6 percent
	Fine aggregate	: 1.0 percent
(xv)	Free (surface) moisture Coarse aggregate	: Nil (absorbed moisture full)
(xvi)	Sieve analysis	
	Coarse aggregate	: Conforming to Table 2 of IS:383
	Fine aggregate	: Conforming to Zone I of IS: 383.

(16)

Or

(b) Enumerate the various steps involved in the manufacture of concrete. (16)

17. (a) Explain the various types of stone masonry with neat sketches. (16)

Or

(b) Explain the different types of joints in concrete structure with neat sketches. (16)

18. (a) (i) Write the fire protective requirements of the building? (8)

(ii) Write a short essay on the various materials used for thermal insulation of building. (8)

Or

- (b) Bring out the general principles and factors in acoustical design of a hall. (16)
19. (a) Explain causes of damage and deterioration in masonry and concrete structures. (16)

Or

- (b) (i) Give Some common types of repair works which can be applied in the rehabilitation of buildings. (8)
- (ii) Write short notes on grouting techniques. (8)
20. (a) What are the factors must be taken into account during selection of earthwork equipment? (16)

Or

- (b) Describe in detail the various equipment used for compaction, batching and mixing of concrete. (16)
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