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**Question Paper Code: 42105**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Second Semester

Civil Engineering

14UCE205 – CONSTRUCTION MATERIALS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

- For one cubic metre of brick masonry, number of bricks required, is  
(a) 400                      (b) 425                      (c) 450                      (d) 500
- Excess of alumina in the clay  
(a) makes the brick brittle and weak  
(b) makes the brick crack and warp on drying  
(c) changes colour of the brick from red to yellow  
(d) improves impermeability and durability of the brick
- Loss on ignition in cement should not exceed  
(a) 1%                      (b) 4%                      (c) 8%                      (d) 12%
- Bulking of sand is caused due to  
(a) surface moisture (b) air voids                      (c) viscosity                      (d) clay content
- The minimum water cement ratio to obtain workable concrete is  
(a) 0.6                      (b) 0.5                      (c) 0.55                      (d) 0.4

6. The slump test of concrete is used to measure its  
(a) workability (b) tensile and compressive strength  
(c) impact value (d) homogeneity
7. Seasoning of timber is the process of  
(a) Cutting timber (b) Drying timber  
(c) Wetting timber (d) Painting timber
8. Plywood is specified by  
(a) Volume (b) thickness (c) weight (d) none of the above
9. With a percentage increase of carbon in steel, decreases its  
(a) strength (b) hardness (c) brittleness (d) ductility
10. The value of poisson's ratio for steel within the elastic region ranges from  
(a) 0.17 to 0.25 (b) 0.25 to 0.33  
(c) 0.33 to 0.41 (d) 0.41 to 0.49

PART - B (5 x 2 = 10 Marks)

11. What are the defects in brick masonry?
12. What is meant by hydration of cement? What is its importance?
13. Define workability.
14. What is timber?
15. What is the objective of heat treatment of steel?

PART - C (5 x 16 = 80 Marks)

16. (a) Briefly explain the tests conducted on bricks for their suitability for construction work. (16)

Or

- (b) What are the simple field tests that you can carry out to determine the suitability of stone to determine quality of stones. (16)

17. (a) Explain the step by step methods involved in manufacture of cement by wet process. (16)

Or

(b) Detail the manufacturing process of cement. (16)

18. (a) Give the step by step procedure for concrete mix design by IS method. (16)

Or

(b) Explain the procedure of IS method of concrete mix design. (16)

19. (a) What are the characteristics of good timber? What is the object of seasoning it? Explain briefly the different methods of seasoning timber. (16)

Or

(b) Detail about the classification on timbers. (16)

20. (a) Discuss about the following

(1) Mechanical treatment of steel (8)

(2) Heat treatment of steel (8)

Or

(b) Give the properties and uses of cast iron and mild steel. (16)

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