

12. (a) Describe briefly the distinct operations involved in the manufacture of ordinary Portland cement. (16)

Or

- (b) (i) What is meant by aggregate? Briefly describe their classification. (8)
(ii) Discuss the characteristics of aggregates. (8)
13. (a) (i) What is meant by proportioning of concrete? Discuss the theory of formation of concrete. (6)
(ii) Estimate the yield of concrete per bag of cement for a concrete mix of proportion. (1 : 2_v : 4) (10)

Or

- (b) Describe briefly :
(i) Strength of concrete (8)
(ii) ACI method of mix design. (8)
14. (a) Give a brief description of the process of painting on different surfaces. (16)

Or

- (b) Describe with neat sketches the various market forms of steel. (16)
15. (a) Write notes on :
(i) Composite materials (6)
(ii) Geosynthetics for Civil Engineering Applications. (10)

Or

- (b) (i) What is terra - cotta? How is it manufactured? (10)
(ii) Discuss the varieties of terra cotta. (6)