

[This question paper contains 4 printed pages.]

Your Roll No.....

3317

J

B.Tech. (C)/II

**Paper VI—ENGINEERING MATERIALS :
CONSTRUCTION AND COSTING**

(ECE-206)

Time : 3 Hours

Maximum Marks : 70

*(Write your Roll No. on the top immediately
on receipt of this question paper.)*

Answer any five questions.

Assume missing data, if any.

1. (a) Name four important constituent of cement and state the role of each in achieving its properties.

4

- (b) Explain the significance of testing the initial and final setting time of cement and how is it done? What is the effect of adding gypsum on setting time?

4

- (c) Explain special properties of various cements given below :

(i) Rapid hardening portland cement,

(ii) Blast furnace slag cement,

(iii) Sulphate resisting cement,

(iv) High alumina cement.

6

[P. T. O.]

2. (a) What do you mean by grading of aggregates? Why is it necessary that the aggregates should be properly graded? 4
- (b) Write notes on the following :
- (i) Bulking of sand
 - (ii) Proportioning of aggregates
 - (iii) Deleterious materials
 - (iv) All in aggregates. 6
- (c) List the important properties and uses of lime concrete. 4
3. (a) Explain the importance of the water-cement ratio in cement concrete. 4
- (b) Describe briefly the precautions in batching, mixing, transporting and compacting of cement concrete. 6
- (c) List the different special cement concretes and describe their special features. 4
4. (a) Name the different types of foundations you recommend under different situations and the soil. Explain them briefly. 4
- (b) Enumerate the various classes of rubble masonry. What are the important points to be kept in view while carrying out rubble work? 4
- (c) Explain the various terms, by means of a neat sketch, used in connection with the arch work. 6

5. (a) What are the requirements of a stair case in residential and public buildings? Draw a section through R.C.C. stair case showing tread, rise, baluster, newel post, hand rail, landing. 8
- (b) What are the objectives of plastering? Name the various plasters and mention the requirements of a good plaster. 3
- (c) Why the distempering should be preferred to white-washing or colour washing? What are the qualities or good properties of distempers? 3
6. (a) What do you understand by the terms 'Acoustics' and 'Acoustics of a Building'? Where do you use the knowledge of acoustics and sound insulation in building? 7
- (b) Describe briefly the functional requirements of a good ventilating system. What general rules do you observe for natural ventilation in buildings? 7
7. Prepare a detailed estimate of part of a wall of a building from the given plan and section and general specifications. (Fig. 1) 14
- General specifications :
- (i) Foundation concrete shall be lime concrete.
- (ii) Foundation and plinth shall be of 1st class brickwork in lime mortar.

- (iii) Damp proof course—2.5 cm c.c. 1 : $1\frac{1}{2}$: 3 with water proofing compound.
- (iv) Super structure ~ 1st class brickwork in lime mortar.
- (v) Wall finishing – Inside wall 12 mm cement plastered 1 : 6 and white washed 3 coats.

Outside wall 12 mm cement plastered 1 : 6 including 10 cm below ground level and finished with two coats of colour wash over one coat of white washing. Answer the rates.

WALL WITH STANDARD MODULAR BRICKS

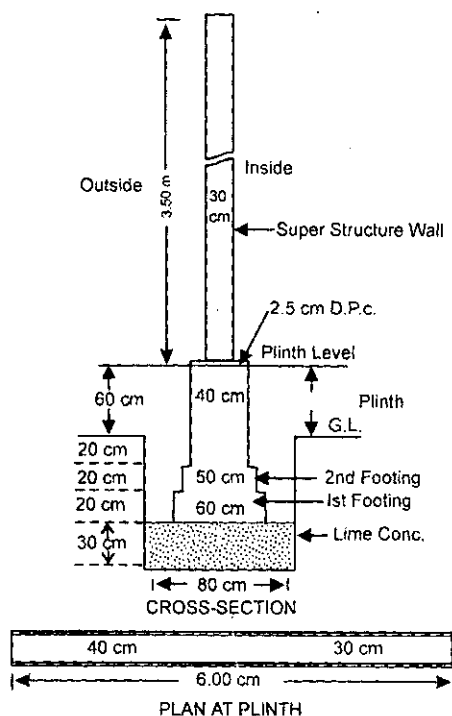


Fig. 1