43(5)STRU(V)5.5

2013
Structures-V
Paper : 5.5
Full Marks : 100
Time – 3(Three hours)

The figures in the margin indicate full marks for the questions

A   Answer any five of the following   5×2=10
     (Each question caries 2 marks)
1.   What are the methods of improving SBC of Soil.   2
2.   What are the causes of failure of foundations?   2
3.   What are the situations of providing combined footings?   2
4.   Draw a section of under-reamed RCC pile?   2
5.   What is cement concrete and what is its composition?   2
6.   What is characteristic load?   2
7.   What is the water-cement Ratio for M15, M20 &   2
     M25 grades?
8.   What are the factors which affects the workability   2
     of concrete.

B.   Answer any five of the following.   5×4=20
     (Each question carries 4 mark)
1.   What is the essential requirement of a Good foundation?   4
2.   What is nominal mix of concrete and explain the   4
     different grades?
3.   What is water cement ratio and how does it   4
     affects the concrete?
4.   What are the properties of concrete?   4
5.   Write the minimum cement content for different   4
     grades of concrete?

P.T.O.

6. What is the imposed load for an office building (with and without storage)? 4

7. What is the imposed load for a residential building? 4

8. What are the different types of reinforcement and grades? 4

C. Answer any five of the following : 5×6=30
(Each question carries 6 marks)

1. What are the functions of foundations?

2. Explain the different methods of design with stress-strain graph? 6

3. What is the requirement of a good formwork? 6

4. Write the stripping time of formwork for Columns, Beams and Slab? 6

5. What is the difference between PCC and RCC and write its uses? 6

6. Write the procedures for design mix of concrete? 6

7. Explain the slump test and write its values for different concrete? 6

8. What is durability of concrete and what are the factors which affects durability? 6

9. Write the different load Comb : Nations used in design? 6

10. Explain the classification of piles based on its function with appropriate images. 6

DC. Answer any four of the following : 4×10=40
(Each question carries 10 marks)

1. Calculate the DL and LL for a residential building of size 5m×5m and column size=300×300mm, beam size=250×400mm and slab thickness = 100mm 10

2. Find the M.R. of a singly reinforced concrete beam of size 200×400mm and reinforced with 4-20 Dia bar. Use M20 grade of concrete? 10

3. Find the M.R. of a singly reinforced concrete beam of size 200×400mm and reinforced with 3-20dia bar. Use M20 grade of concrete. 10

4. Explain the different types of foundations with images? 10

5. What is design load and briefly explain the different design loads? 10

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