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KVP/KS/12/2924/3546

8.2012

Faculty of Engineering & Technology

Fourth Semester B.E. (Civil Engg.)/Second Semester

B.E. (Civil) P.T. Examination

BUILDING CONSTRUCTION & MATERIALS

Paper—I

Sections—A & B

Time—Three Hours]

[Maximum Marks—80

INSTRUCTIONS TO CANDIDATES

- (1) All questions carry marks as indicated.
- (2) Answer **THREE** questions from Section A and **THREE** questions from Section B.
- (3) Assume suitable data wherever necessary.
- (4) Illustrate your answers wherever necessary with the help of neat sketches.

SECTION—A

1. (a) What is bearing capacity of soil ? Explain plate load test to find bearing capacity of soil. 7
- (b) Design the foundation for a stone pillar, 40 cm × 30 cm carrying a superimposed load of 300 kN at its top. The height of the pillar above

the ground level is 4 m. Take the unit weight of stone masonry as 22.5 kN/m^3 and that of lean cement concrete as 23 kN/m^3 . The soil has angle of repose of 25° , unit weight of 18 kN/m^3 and SBC of soil is 150 kN/m^2 . The foundation concrete may be in 1 : 4 : 8 having safe modulus of rupture equal to 245 kN/m^2 . 7

2. (a) What measures would you take while constructing foundation in Black Cotton Soil ? Explain in detail. 6
- (b) Write the principles to be adopted while construction of brick masonry. 7
3. (a) What is bond ? Describe in brief various types of bond used in Brick Masonry. 6
- (b) What do you understand by 'Reinforced Brick Masonry' ? Explain the method of construction. 7
4. (a) What are the functions of Arches and Lintels ? Give relative merits and demerits of lintels over arches. 6
- (b) Draw the elevation and cross-section of typical stone masonry :
- (i) Course Rubble masonry
- (ii) Ashlar Fine masonry. 7

5. (a) What are the appliances used for lifting heavy stones ? Explain briefly. Draw sketch. 6
- (b) What are the causes of damp proofing ? Also explain different methods of damp proofing. Explain in brief. 7

SECTION—B

6. (a) What are the factors to be considered for the selection of floor material ? 6
- (b) What are the different types of floor finishes ? Explain Terrazzo flooring. 7
7. (a) What are the advantages and disadvantages of pitched and flat roofs ? 6
- (b) Explain various types of roof covering for pitched roof that are commonly adopted in India. Explain any one in detail. 7
8. (a) A stair hall of public building which measures 4.25 m × 5.25 m. The vertical distance between the floor is 3.9 m. Design the suitable stair for the building and draw a neat sketch. 7
- (b) Draw the diagram of panelled door and explain its parts :
- (i) Hold-fast
 - (ii) Rails
 - (iii) Mullion. 6

9. (a) Differentiate between sky light and pivoted window with the help of sketches. 6
- (b) Explain white washing procedure. 4
- (c) What is the object of pointing ? Describe the operation of pointing. 4
10. (a) What are the defects in painting ? Suggest suitable remedial measures. 6.
- (b) What do you understand by the term 'Underpinning' ? Explain. 7