

DIPLOMA IN CIVIL ENGINEERING

Term-End Examination

June, 2011

BCE-024 : CONSTRUCTION TECHNOLOGY-I

Time : 2 hours

Maximum Marks : 70

Note : Question no.1 is compulsory. Attempt any four more questions out of questions number 2 to 8. All questions carry equal marks.

1. (a) The common criteria for sizes of doors used in India is : 7x2=14
- (i) width = height
- (ii) width = (0.4 to 0.6) × height
- (iii) width = 0.2 × height
- (iv) width = 0.3 × height

- (b) The minimum depth of foundation (D) can be determined as :

$$(i) \quad D = \frac{q}{r} \left(\frac{1 + \sin \phi}{1 - \sin \phi} \right)^2$$

$$(ii) \quad D = \frac{q}{r} \left(\frac{1 + \sin \phi}{1 - \sin \phi} \right)$$

$$(iii) \quad D = \frac{q}{r} \left(\frac{1 - \sin \phi}{1 + \sin \phi} \right)^2$$

$$(iv) \quad D = \frac{q}{r} \left(\frac{1 - \sin \phi}{1 + \sin \phi} \right)$$

- (c) A partition wall is designed to carry :

- (i) Live loads
- (ii) Imposed loads
- (iii) Portion loads from roof
- (iv) No external loads

- (d) The type of bond in which every course contains both header and stretchers, is called :

- (i) English bond
- (ii) Flemish bond
- (iii) Russian bond
- (iv) Mixed bond

- (e) The highest part of extrados of an arch is known as :
- (i) Crown
 - (ii) Key
 - (iii) Spandril
 - (iv) Arcade
- (f) The crushing strength of a first class brick should not be less than :
- (i) 3.5 N/mm^2
 - (ii) 7.0 N/mm^2
 - (iii) 10.5 N/mm^2
 - (iv) 14.0 N/mm^2
- (g) The best location for DPC in case of buildings without basements lies at :
- (i) Plinth level
 - (ii) Ground level
 - (iii) 15 cm above ground level
 - (iv) 1 m above ground level

2. (a) What are the various types of foundations ? 7
Explain with the help of a systematic sketch.
- (b) Under what circumstances would you adopt a combined RCC footing ? Explain the features of such a foundation in brief. 7
3. (a) Describe the different types of partitions giving the merits and demerits of each. 7
- (b) Describe the purpose of providing a bond in the construction of brick works. 7

4. (a) Explain the various ways in which an arch fails. 7
(b) "RCC Lintels have practically replaced all other materials used for Lintels". Justify this statement. 7
5. (a) Define and briefly describe what do we understand by termites, and their types. 7
(b) What are the visible signs of the action of dampness in a building and what precautions are necessary to avoid the same ? 7
6. (a) What is purpose of plastering ? Explain in brief the different types of plasters adopted for external finishing of wall surfaces. 7
(b) Explain the design of windows in a room. 7
7. Write short notes on the following : $4 \times 3\frac{1}{2} = 14$
(a) Cavity wall.
(b) Settlement of foundations.
(c) Quality assurance in brick masonry.
(d) Components of scaffolding.
8. Differentiate between the following : $4 \times 3\frac{1}{2} = 14$
(a) Shallow and Deep Foundation.
(b) Lintel and Arch.
(c) Stone and Brick Masonry.
(d) Revolving and Swinging door.