

**DIPLOMA IN MECHANICAL ENGINEERING
(DME)**

Term-End Examination

June, 2016

00330

BCE-025 : ELEMENTARY CIVIL ENGINEERING

Time : 2 hours

Maximum Marks : 70

Note : *Question no. 1 is compulsory. Attempt any four more questions out of questions no. 2 to 7. All questions carry equal marks. Explain your answers with the help of neat sketches.*

1. Choose the correct answer from the following four alternatives : $7 \times 2 = 14$

- (a) In case of foundations on black cotton soils, the most suitable method to increase the bearing capacity of soils is to
- (i) increase the depth of foundation
 - (ii) drain the soil
 - (iii) compact the soil
 - (iv) replace the poor soil

- (b) Minimum thickness of wall where Single Flemish bond can be used is
- (i) half brick thick
 - (ii) one brick thick
 - (iii) one and a half brick thick
 - (iv) two bricks thick
- (c) The basic purpose of a retarder in concrete is
- (i) to increase the initial setting time of cement paste in concrete
 - (ii) to decrease the initial setting time of cement paste in concrete
 - (iii) to render the concrete more water tight
 - (iv) to improve the workability of concrete mix
- (d) The heaviest I-section for same depth is
- (i) ISMB
 - (ii) ISLB
 - (iii) ISHB
 - (iv) ISWB
- (e) The minimum width of clearway is
- (i) 50 m
 - (ii) 100 m
 - (iii) 150 m
 - (iv) 250 m

- (f) The opening left in flat roofs for lighting purpose is called
 - (i) lantern
 - (ii) dormer window
 - (iii) sky light
 - (iv) gable window
 - (g) King closers are related to
 - (i) doors and windows
 - (ii) king post truss
 - (iii) queen post truss
 - (iv) brick masonry
2. (a) Explain the importance of environmental engineering in day-to-day life. State the different methods of irrigation system. 7
- (b) Explain in brief field identification test for coarse-grained soils. Enlist the different methods to determine bearing capacity. 7
3. (a) Explain Flemish bond and English bond with the help of neat sketches. 7
- (b) Explain the properties of concrete in plastic state. Explain the advantages and disadvantages of concrete. 7

4. (a) Explain the different types of riveted and welded connections with the help of neat sketches. 7
- (b) Describe the design of windows in a room. Explain the different types of windows with the help of neat sketches. 7
5. (a) Discuss the common materials used for flooring. Explain rubber flooring. 7
- (b) Explain the different types of plastering. Discuss the common materials used for plastering and water-proofing. 7
6. (a) Explain in detail the construction of water-bound macadam road and construction of concrete road. 7
- (b) Describe the various components of an airport. 7
7. Write short notes on any *four* of the following : $4 \times 3 \frac{1}{2} = 14$
 - (a) Geodetic and plane surveying
 - (b) Advantages of flush doors
 - (c) Different types of trusses
 - (d) Process diagram of concrete
 - (e) Plate load test