

01095

**Diploma in Electrical and Mechanical
Engineering**

Term-End Examination

June, 2010

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 8. All questions carry equal marks. Explain your answers with the help of neat and labelled sketches.

1. Choose the correct alternatives : 7x2=14
- (a) In case of perfectly dry soil, the voids are completely filled with :
- (i) water
 - (ii) air
 - (iii) soil solids
 - (iv) mixture of water and air
- (b) M20 concrete is judged by the strength criteria of :
- (i) 20 N/m²
 - (ii) 20 N/cm²
 - (iii) 20 N/mm²
 - (iv) 20 kN/mm²

- (c) A butt weld is specified by :
 - (i) effective throat thickness
 - (ii) plate thickness
 - (iii) size of weld
 - (iv) penetration thickness
- (d) Air entrainment in the concrete increases :
 - (i) workability
 - (ii) strength
 - (iii) the effect of temperature
 - (iv) unit weight
- (e) A building is an obstacle to :
 - (i) chaining but not ranging
 - (ii) ranging but not chaining
 - (iii) both chaining and ranging
 - (iv) neither chaining nor ranging
- (f) In highway construction, rolling starts from :
 - (i) sides and proceed to centre
 - (ii) centre and proceed to sides
 - (iii) one side and proceed to other side
 - (iv) none of the above
- (g) A hard surfaced straight path, used for taking off and landing within a landing area is known as :
 - (i) runway
 - (ii) lounge
 - (iii) taxiway
 - (iv) aprons

2. (a) Describe the importance of quantity surveying in any construction project. 7
(b) Discuss the applications of civil engineering to mechanical engineering related constructions. 7
3. (a) Explain the objectives of foundation in a building structure. 7
(b) Describe different methods of soil classification in brief. 7
4. (a) What do you mean by brick masonry ? Explain safe permissible loads on brick masonry. 7
(b) Explain Flemish bond with the help of neat sketches. 7
5. (a) Discuss the various factors on which strength and durability of concrete depends. 7
(b) What do you mean by compaction of concrete ? Explain the various methods of compaction of concrete. 7
6. (a) Discuss different types of welded connections. 7
(b) Describe the various components of an airport. 7
7. (a) Describe the design of windows in a room. 7
(b) Discuss the common materials used for flooring. 7

8. Differentiate between the following : $4 \times 3\frac{1}{2} = 14$
- (a) Geodetic and plane surveying.
 - (b) Shallow and deep foundation.
 - (c) Butt and fillet weld.
 - (d) Segregation and bleeding.
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