

**Diploma in Electrical and Mechanical
Engineering**

Term-End Examination

December, 2007

**BCE-025 : ELEMENTARY CIVIL
ENGINEERING**

Time : 2 hours

Maximum Marks : 70

Note : Question number 1 is **compulsory**. Attempt any **four** more questions out of questions number 2 to 8. All questions carry equal marks. Explain your answer with the help of neat and labelled sketches.

1. Choose the correct alternative : 7×2=14

(a) The distance between the inner faces of the rails for a broad gauge rail track is

(i) 1.676 m

(ii) 1.000 m

(iii) 0.765 m

(iv) 1.500 m

(b) The minimum depth of foundation can be determined by

(i) $\frac{p}{w} \left(\frac{1 + \sin \phi}{1 - \sin \phi} \right)^2$

(ii) $\frac{p}{w} \left(\frac{1 + \sin^2 \phi}{1 - \sin^2 \phi} \right)$

(iii) $\frac{p}{w} \left(\frac{1 - \sin^2 \phi}{1 + \sin^2 \phi} \right)$

(iv) $\frac{p}{w} \left(\frac{1 - \sin \phi}{1 + \sin \phi} \right)^2$

(c) The frog of the brick in a brick masonry is generally kept on

- (i) bottom face
- (ii) shorter side
- (iii) top face
- (iv) longer side

(d) The property of ingredients to separate from each other while placing the concrete is called

- (i) segregation
- (ii) compaction
- (iii) shrinkage
- (iv) bleeding

(e) Bolts are most suitable to carry

- (i) shear
- (ii) bending
- (iii) axial tension
- (iv) shear and bending

- (f) The suitable door for entrance in an air conditioned building is a
- (i) revolving door
 - (ii) louvered door
 - (iii) collapsible door
 - (iv) swinging door
- (g) A paved path provided for the purpose of allowing aircraft to move to and from the runway and the apron is known as
- (i) Airfield
 - (ii) Taxiway
 - (iii) Aerodrome
 - (iv) Apron
- 2.** (a) Explain the various components of a building in brief. 7
- (b) Discuss the functions of a civil engineer for any type of project. 7
- 3.** (a) Discuss the various methods of improving bearing capacity of soil. 7
- (b) Explain the procedure of determining the width and depth of shallow foundations. 7