

**DIPLOMA IN CIVIL ENGINEERING**  
**DCLE(G)**

**Term-End Examination**

00470

**June, 2016**

**BCE-052 : TRANSPORTATION ENGINEERING**

*Time : 2 hours*

*Maximum Marks : 70*

*Note : Attempt any **five** questions. Give well-labelled, neat sketches.*

1. (a) List the various modes of transport used in India. 4
- (b) Give the merits and demerits of each mode of transport. 4
- (c) Draw a full-page typical cross-section of : a road going through an urban area; and a road passing through a non-urban area. 6
2. (a) Compare and contrast rigid and flexible pavements. 4
- (b) Draw a cross-section of a road/pavement suitable in water-logged areas. 10

3. (a) Briefly explain the following : 8
- (i) Design of highways, district roads, and village roads.
  - (ii) Long term road plan (1961-1981) of India, and its objectives.
  - (iii) Use of laterite, limestone and sandstone in roads.
  - (iv) Utility of Loco sheds, and signals in railways.
- (b) Discuss the outline of the following : 6
- (i) Layout and design features of a good artificial harbour.
  - (ii) Control of movement of aircraft on the runways.
  - (iii) Construction of Gabion walls and their advantages.
4. (a) What are obligatory points on a road alignment ? Why are curves provided in the alignment ? 4
- (b) What is the importance of sight distance on road curves ? 4
- (c) Why and how is super-elevation provided in roads ? 6

5. (a) Draw a cross-section of a road that is suitable in a desert. 5
- (b) Discuss the method of construction of such a road. 3
- (c) A bridge is to cross over a river, flowing in an alluvial soil. The maximum discharge of the river is 1360 cumec, and  $f = 0.55$ . Find the optimum length of the waterway required. Also find the depth of foundation of the piers that is to be adopted. 6
6. (a) Give the requirements of a good railway station. 7
- (b) Draw a manual of maintenance of a railway track, clearly giving the various operations involved. 7
7. Write short notes on any *two* of the following:  $2 \times 7 = 14$
- (a) Inland water transport in coastal areas
- (b) Layout of an airport
- (c) Use of ballast and sleepers in railway tracks
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