

**Diploma in Civil Engineering  
DCLE (G)**

**Term-End Examination**

**December, 2012**

**BCE-052 : TRANSPORTATION ENGINEERING**

*Time : 2 hours*

*Maximum Marks : 70*

*Note : Question number 1 is compulsory. Attempt any four questions from the balance. Calculator is permitted.*

1. (a) Fill in the blanks with the appropriate option given in the bracket : **7x1=7**
- (i) PMGSY aims at connecting all villages with a population of above 500 by the year \_\_\_\_\_. (2015/2018/2020)
- (ii) NHDP aims at four-laning of the \_\_\_\_\_ quadrilateral and the East-West and North-South corridors. (Silver/Golden/Platinum)
- (iii) The \_\_\_\_\_ is a professional body of highway engineers dealing with formulation of codes, guidelines and specifications for road works. (NITHE/CRRI/IRC)

- (iv) \_\_\_\_\_ is the width of land acquired to accommodate the road. (Right-of-way/Carriage way/Road way)
- (v) \_\_\_\_\_ is the temperature at which bitumen gives off vapours which can ignite a flame. (Flash point/Softening point/Boiling point)
- (vi) \_\_\_\_\_ is the fastening used to join the ends of two rails to increase the length.(Fish plate/Splice plate/Space plate)
- (vii) \_\_\_\_\_ is a continuous structure, generally acting as a retaining wall, along the shore line of a sea. (Jetty/Harbour/Wharf)
- (b) Indicate correct or incorrect statement from the followings : 7x1=7
- (i) A breakwater is an artificial structure to protect ships from the effect of waves and storms.
- (ii) Instrumented landing system is used when the weather conditions are favourable.
- (iii) The aircraft have to follow designated routes in air space.
- (iv) Rail line inspector is the staff in-charge of inspecting and maintaining the railway line.

- (v) The formation width is 5.49m for a single track BG, when the track is in cutting.
- (vi) Sand replacement method is used for determining the moisture content of compacted earth.
- (vii) Super-elevation is the value by which the inner edge of a road or curve is raised.
2. (a) Discuss the three elements of a transport system. State some of solutions that are possible to deal with India's urban transport problem. 3+4=7
- (b) Explain various consideration which govern the selection of road alignment. 7
3. (a) Discuss the types of vertical gradient. Explain the gradients for plain and rolling terrian practiced in India. 4+3=7
- (b) Describe the desirable properties of bitumen. Explain any one test which is conducted on bitumen. Name the various types of tests conducted on bitumen. 3+2+2=7
4. (a) Explain the types of joints needed in concrete pavements. Support your answer with suitable sketches. 7
- (b) Discuss the common defects which occur in a bituminous road. 7

5. (a) Discuss various types of bridges with their suitability. 7
- (b) Find out the estimated discharge, if the catchment area is 1000 sq km and the stream is located in Western Ghats. Considering the stream as alluvial find out the water way required.  $3^{1/2}+3^{1/2}=7$
6. (a) Name the types of points and crossings used in railways. Explain any two of them.  $3+4=7$
- (b) Enlist the main components of an airport. Explain the types of pavements used in airport with their preferences.  $4+3=7$
7. (a) What are the materials that can be transported in pipe lines? Explain the advantages of pipe line transport.  $3+4=7$
- (b) Explain the nature of problems faced in urban transport. Differentiate between light rail transit and rapid rail transit.  $4+3=7$
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