

Diploma in Civil Engineering

Term-End Examination

December, 2010

BCE-052 : TRANSPORTATION ENGINEERING

Time : 2 hours

Maximum Marks : 70

Note : All questions carry equal marks of 14 each. Question number 1 is compulsory. Attempt any four questions out of question number 2 to 7.

1. (a) Fill in the blanks : (Choose the answer given in the bracket) 7x1=7
- (i) \_\_\_\_\_ is the loss of bond between aggregates and bitumen due to the presence of water. (strapping/ stripping/ straining)
  - (ii) \_\_\_\_\_ % of cross slope is provided for facilitating drainage for bituminous roads. (1.5, 2.5, 3.5, 4.5)
  - (iii) \_\_\_\_\_ are constructed with dry stones encased in wire mesh or geogrid cages. (Retaining wall / gabion walls / masonry walls)
  - (iv) Super - elevation is the raising of the outer rail to counter act \_\_\_\_\_ on curves. (centripetal force/ centrifugal force / gravity force )

- (v) \_\_\_\_\_ is a facility where trains stop and passengers entrain and detrain ( Yard/ Plateform / Apron )
- (vi) \_\_\_\_\_ is the area intended to accommodate standing aircraft for the purpose of loading or unloading of passengers and cargo (Apron / Field/ Runway )
- (vii) \_\_\_\_\_ is a continuous structure, generally acting as a retaining wall, along the shore line of a sea (Yard, Docks, Wharf)
- (b) Differentiate between the followings :
- (i) RCC box culvert and RCC slab culvert 3½
- (ii) Natural harbour and artificial harbour 3½
2. Explain basic considerations governing selection of road alignment in plain and hilly regions 14
3. (a) Why is a horizontal curve provided in roads? Describe the various forces and counteractions acting on a vehicle while moving on a curve. 7
- (b) Explain briefly with sketches, the penetration test and softening point test conducted on bitumen. 7

4. (a) Describe with sketch the longitudinal and expansion joints in concrete pavements . 7
- (b) Describe the specifications of premix carpet. 7
- 5 (a) What are the principles that govern in design of rural roads ? 7
- (b) Explain the merits and demerits of RCC pipe culverts. What types of RCC pipes are used in RCC pipe culverts? 7
6. (a) Describe the considerations that lead to maintenance of railway track. What types of inspection are carried out by permanent way inspector? 7
- (b) Write down the various requirements of a passenger terminal building. 7
7. (a) What are the factors, which have a bearing on planning water transport facilities? 7
- (b) What are heliports and STOL Ports? 7
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