

Diploma in Civil Engineering**Term-End Examination****December, 2011****BCE-052 : TRANSPORTATION ENGINEERING***Time : 2 hours**Maximum Marks : 70*

Note : Question number 1 is *compulsory*. Attempt *four* more questions from question no. 2 to 6.

1. (a) Indian road network is 3.3 million km which is the _____ largest in the world. **1x14=14**
- (i) First (ii) Second
(iii) Third (iv) Fourth
- (b) Vision document 2021 says the construction of express way should be :
- (i) 50,000 km (ii) 40,000 km
(iii) 20,000 km (iv) 10,000 km.
- (c) The affinity of aggregate for firm binding to the bitumen is checked by :
- (i) Specific gravity test
(ii) Stripping value test
(iii) Soundness test
(iv) Shape test.

- (d) The number of years for which a pavement is designed is known as
- (i) safe period
 - (ii) design period
 - (iii) testing period
 - (iv) none of the above
- (e) Higher the value of pavement condition index :
- (i) Better will be the quality
 - (ii) Poorer will be the quality
 - (iii) Not related to the quality
 - (iv) Nothing can be said.
- (f) The depth of foundation below HFL is x times scour depth where x is :
- (i) 1.22
 - (ii) 1.33
 - (iii) 1.49
 - (iv) 1.55
- (g) If M is the length of standard rail in m, for the high speed BG routes the sleeper density is taken as :
- (i) $M + 3$
 - (ii) $M + 7$
 - (iii) $M + 11$
 - (iv) $M + 13$
- (h) A modern airport facility catering to latest models of aircraft may have runway and taxiway widths (in m) respectively :
- (i) 35, 13
 - (ii) 45, 23
 - (iii) 55, 26
 - (iv) 65, 33

- (i). A rapid rail transit system can be constructed :
- (i) On the ground surface
 - (ii) Underground
 - (iii) Over bridge
 - (iv) All of the above.
- (j) The waterway of a river is estimated by using Lacey's formula given by :
- (i) $2.75 \sqrt{Q}$ (ii) $4.75 \sqrt{Q}$
 - (iii) $2.35 \sqrt{Q}$ (iv) $4.35 \sqrt{Q}$
- (k) A subgrade soil is silt with liquid limit 25%. It will be designated as :
- (i) ML (ii) MI
 - (iii) CL (iv) CI
- (l) For the estimation of a radius of horizontal curve, the coefficient of friction is taken as :
- (i) 0.05 (ii) 0.15
 - (iii) 0.25 (iv) 0.35
- (m) The flash point of bitumen with the increasing grade of bitumen :
- (i) increases
 - (ii) decreases
 - (iii) remain constant
 - (iv) nothing can be said
- (n) The concrete mix for the construction of rigid pavement for low volume roads shall not be less than :
- (i) M - 15 (ii) M 25
 - (iii) M 35 (iv) M 45

2. (a) What is a transition curve ? Explain its properties briefly. 7
(b) Explain aggregate impact test. 7
3. (a) What is soil stabilisation ? Explain any one method of soil stabilisation. 7
(b) What is the necessity of road drainage ? Explain surface and subsurface drainage briefly. 7
4. (a) Discuss the methods adopted for the road construction in marshy area and desert areas. 7
(b) Discuss various types of culvert in brief. 7
5. (a) What are the points to be considered for the selection of alignment of a railway line ? 7
(b) Explain a Diamond crossing with a neat sketch. 7
6. Write short notes on *any four* of the following : $4 \times 3\frac{1}{2} = 14$
 - (a) Site selection for a bridge
 - (b) Super elevation
 - (c) Well foundation
 - (d) Sand drains.
 - (e) CBR test
 - (f) Role of each mode of transport