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B.Tech. 5th Semester (Civil Engg.) Examination,
December–2012
TRANSPORTATION ENGG.-I
Paper—CE-303-F

Time allowed : 3 hours] _[Maximum marks : 100_

Note : _Qs._ **1** _is_ **compulsory.** _Attempt any other_ **four**
questions, selecting at least **one** _question from_
each Part.

1. (a) What is Transportation Engineering ?

   (b) Explain various types of Highway plans.

   (c) What is highway alignment ?

   (d) State the factors affecting alignment.

   (e) What is IRC recommended values ?

   (f) List out the various types of terrian design speed.

   (g) Define valley curves.

   (h) What is O and D studies ?

   (i) Define CBR test.

   (j) Define the types of ballast size.

   (k) Explain the method of relaying of track.

   (l) What is Lining of tunnels.   2×10=20

Part–A

2. (a) Discuss the role of transportation in National development.   10

   (b) Compare road transportation with order mode of transportation.   10

3. Determine the length of different categories of roads in a state in India by the year 2001, using the 3rd road development formula and with the following data :

Area of state : 15000 sq km; Number of Towns = 20

Road Density : 82 km/100 km².   20

Part–B

4. (a) Explain obligatory points with neat sketches discuss how these control the alignment.   10

   (b) Discuss the survey steps to be followed for new highway alignment.   10

5. A valley curve is formed by a descending gradient of 1 in 25 meetings on ascending gradient of 1 on 30. Design the total length of valley curve, if the design speed is 100 kmph. so as to fulfill comfort conditions and head light sight distance for hight driving assuming suitable details.   20

Part–C

6. (a) Explain the desirable properties of good sub grade soil.   10

   (b) Distinguish between bitumen and tar.   10

7. (a) Explain with neat sketch, how the CBR test is conducted in the laboratory.   10

   (b) Explain 'E S W L' and the concept in the determination of the equivalent wheel load.   10

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Part–D

8. (a) Explain the construction steps of (i) water bound macadam ; (ii) Cement Concrete pavement.   10

   (b) Explain the important design steps for longitudinal drain of a road to drain off surface water.   10

9. (a) Write short notes on BOT and BOOT concepts.

                                                            10

   (b) Explain with neat sketches the V.O.C. by using chart only.   10