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B. Tech. III Semester (Civil Engineering) Examination,  
May-2013

**TRANSPORTATION ENGINE-II**

Paper-CE-310-F

Time allowed : 3 hours]

[Maximum marks : 100

*Note : Attempt five questions in all. Question No. 1 is compulsory. Attempt one question from each part. Each question carry equal marks. 20 marks*

1. Do any four :

- (a) Differentiate between Flexible and Rigid Pavements.
- (b) Differentiate between Thick Coat and Prime Coat.
- (c) Differentiate between Surface Drainage and Sub-Surface Drainage System.
- (d) What are general causes of Pavement Failure ?
- (e) Brief discussion on Compressed Air Tunneling Method.  $5 \times 4 = 20$

**Section-A**

- 2. (a) What are the various factors to be considered in pavement design ? Discuss significance of each.
- (b) Explain CBR Method of Pavement Design. How is this method useful to determine thickness of component layer ?  $10 \times 2 = 20$

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3. (a) Briefly discuss the IRC recommendation for determining the thickness of cement concrete Pavement.
- (b) What is construction joint in cement concrete Pavement? Explain various types with sketches.

 $10 \times 2 = 20$ **Section-B**

4. (a) Write down the construction steps for WBM road.
- (b) Discuss briefly various equipment used in the construction of earth work.
5. (a) What are the requirement of materials, plant and equipment in the construction of cement concrete road?
- (b) What are various types of Bituminous construction in use? Discuss advantage and limitation of each.

 $10 \times 2 = 20$ **Section-C**

6. (a) Explain how the maintenance of the following pavement are carried out
- (i) WBM road
- (ii) Bituminous surfaces.
- (b) Explain the Principle and use of Benkelman Beam test.

 $10 \times 2 = 20$



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7. (a) Discuss in brief design for surface drainage system of highway.
- (b) Discuss the maintenance problem in Hill Road.

10×2=20

**Section-D**

8. (a) What is the need of economic evaluation? Discuss method of economic evaluation.
- (b) Discuss in brief on Highway Finance. 10×2=20
9. (a) Discuss in brief various method of Tunnelling in Hard Rock.
- (b) Describe the construction operation driving by Needle Beam Method in Soft ground with sketch.

10×2=20