

<b>Seat No.</b>	
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**B.E. (Civil) (Semester - VII) (Revised) Examination, Nov. - 2013**  
**TRANSPORTATION ENGINEERING - I (New) (Paper - II)**  
**Sub. Code : 47904**

**Day and Date : Thursday, 28 - 11 - 2013**

**Total Marks : 100**

**Time : 2.30 p.m. to 5.30 p.m.**

- Instructions :**
- 1) **Attempt any three questions from section I and II.**
  - 2) **Figures to the right indicate full marks.**
  - 3) **Illustrate your answers with suitable sketches.**
  - 4) **Use of non-programmable pocket calculator is permitted.**

**SECTION - I**

- Q1)** Define objects of Highway Planning and explain empirical methods of estimation of total unit cost of highway transportation. **[16]**
- Q2)**
- a) What are geometric design elements to be considered for a rural highway, explain with cross of road and a sketch. **[12]**
  - b) What is superelevation? Explain with neat sketch how a vehicle negotiating horizontal curve is prevented from skidding or over toppling. **[4]**
- Q3)**
- a) Enlist various traffic studies. Describe of Enoscope with a neat sketch. **[12]**
  - b) With neat sketch explain the purpose of underpass and overpass for divided expressway 2 lane or 4 lane. **[4]**
- Q4)**
- a) Describe the wheel load stress and temperature stress analysis by westergaards methods for rigid pavements. **[10]**
  - b) With neat sketch explain functions of different type of concrete pavement joints. **[6]**

Q5) Write short notes on any three :

[3 × 6 = 18]

- a) Role of weepholes in stability of highway embankments or drainage
- b) Warrants for signalization as per IRC 93 -1985
- c) Concrete Roads with DLC or PQC
- d) Sight Distance on Summit or Valley Curve
- e) Role of plastic money and Highway Financing
- f) Factors affecting length of vertical curves
- g) Highway drainage and gabbions
- h) Concrete Roads with DLC and PQC
- i) Optimum bitumen binder content in design of DBM or MB

### SECTION - II

Q6) a) What are the factors to be considered in preliminary survey for airport site location? [8]

b) Draw a neat sketch representing schematic functioning of an airport with following amenities. [8]

i) Terminal building,

ii) Apron,

iii) Blast Fences,

iv) taxiway and runway

Q7) a) How are wind rose diagrams are developed. Explain the use of the same. [8]

b) Define yaw, pitch and roll and explain the mechanism of flying of an aircraft. [8]

Q8) a) Describe the methodology of transferring of centre line through shaft in alignment of an tunnel. [8]

b) What is tunnel lining ? what are the materials used for tunnel lining based on the purpose of tunnel? [8]

- Q9) a) What are the factors to be considered in selection of site for dock yard. [8]  
b) Factors to be considered in designing of breakwater and tetrapod. [8]

Q10) Write short notes on any three : [3 × 6 = 18]

- a) Geometric Design Standards of Taxiways.
- b) Zoning laws of airport.
- c) Tunneling in Hard Rock.
- d) Ventilation and Lighting in Pilot tunnel.
- e) Navigational Aids and Light house.
- f) Breakwaters, Jetties and wharves.
- g) Mucking and Dredging.

