Seat No.	

B.E. (Civil) (Semester - VII) (Revised) Examination, 2013
TRANSPORTATION ENGINEERING - I (Paper - II)
Sub. Code : 47904

Day and Date : Friday, 31 - 5 - 2013

Time : 2:30 p.m. to 5:30 p.m.   Total Marks : 100

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) a) Describe the points to be considered while selecting the alignment for a new road. **[8]**

b) Differentiate two important points between economic analysis and financial analysis and explain the concept of BOT or BOLT or PPP. **[8]**

Q2) a) What is superelevation? With neat sketch derive the basic formula for superelevation to be provided on horizontal curves. **[12]**

b) What is the radius of curve beyond which no superelevation is required ? **[4]**

Q3) a) Describe the important steps of design of flexible pavement by using IRC method. **[8]**

b) What are the functions of rigid pavement joints? Explain with neat sketch expansion Joint . **[8]**

Q4) a) What are different tests to be carried out on highway construction materials such as fine and coarse aggregate? **[8]**

b) Explain with neat sketch loss angles Abrasion Test to be conducted in laboratory? **[8]**

Q5) Write short notes on any three. [3 × 6 = 18]

   a) Role of weepholes in highway drainage.

   b) Advantages of concrete highway for expressway.

   c) Average daily traffic (ADT) and average annual daily traffic (AADT).

   d) Traffic Control Devices

   e) Factors Controlling Alignment.

   f) Road Development Plan of NHAI or PMGSY.

   g) Camber and OSD.

SECTION - II

Q6) a) What are the standards conditions assumed for designing basic runway length? [6]

   b) The runway length required for landing at sea level in standard atmospheric pressure conditions is 3000m. Runway length required for takeoff at sea level is standard atmospheric condition is 2500m. Aerodrome reference temperature is 25°C and that of the standard atmosphere at aerodrome elevation of 150m is 14.025°C. If the effective runway gradient is 0.5 percent, determine the runway length to be provided. [10]

Q7) a) With neat sketch explain runway orientation and pattern and wind rose diagrams. [10]

   b) Draw schematic diagram explaining different operations of terminal building including apron, holding apron and parking facility. [6]

Q8) a) State the factors to be considered in the planning of port? [10]

   b) Explain the concept of siltation and erosion or dredging? [6]

Q9) a) What are the different shapes adopted for cross section of tunnel engineering? [8]

   b) Explain with neat sketch centre line of tunnel is aligned through a shift? [8]

Q10) Write short notes on any three.

    a)   Aircraft characteristics

    b)   Zoning laws and airport lighting and marking

    c)   Geometric Design of exit taxiway

    d)   Geological investigations of tunneling

    e)   Tunnel lining

    f)   Tunneling in Hard rock

    g)   Tetrapods

    h)   Beacon Lighthouse

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