1T00615 - T.E.(CIVIL)(Sem V) (CBSGS) / 30203 - TRANSPORTATION ENGINEERING - I

(3 Hours)   **Total Marks: 80**

Note: i. **Q. No. 1 is compulsory**
          ii.   Attempt **any** 3 out of **remaining 5**
          iii. Support all **theory and numerical** with **neat sketch**

1. A Calculate corrected runway length for basic runway length of 4100 meter at an airport   (10 M)
      site located at 150m above M.S.L. The airport reference temperature is 32.30° C and standard
      atmospheric temperature is 33.80° C. consider site is horizontal. Also draw layout of airport
      with scale of 1cm = 500m use corrected runway length. Take airport area of 4 km x 3 km
      and show all airport elements. Assume wind is calm in all the direction throughout the year.

    B Write a note on (any 2)   (10 M)
i   Importance of water transportation in India.
ii   Marshalling yard.
iii   Classification of signals.

2. A   Discuss characteristics of Concrete, Timber and cast-iron sleepers on basis of   (08M)
       suitability, durability, cost and weight.
    B   What are 3 controls of aircraft?   (06 M)
    C   Explain Tram-line method of laying railway line.   (06 M)

3. A   Explain Negative Super elevation with neat sketch and find the speed on main curve if a   (08 M)
      5° curve diverges from a 3° main curve on a B.G yard assuming the speed of branch line
      Is 35kmph.

    B   Discuss Instrumental landing system with sketch.   (06M)
    C   Write note on airport drainage.   (06M)

4. A   What is ANC and TNC? Design 1in 8.5 turnout on B.G track which takes off from toe   (08 M)
      and passes through TNC. Assume heel divergence as 11.4cm.
    B   Write a note on breakwaters.   (06M)
    C   Discuss on airport lighting.   (06M)

5. A   Design an exit taxiway connecting runway and parallel taxiway for total angle of   (08M)
      turning as 35°. Turning speed is 80kmph, take coefficient of friction as 0.12. assume any
      other data if required.
    B   Explain dry docks and also compare ports and harbor.   (06 M)
    C   Explain various theories of creep.   (06 M)

6. A   Design the number of gates to serve three classes of aircraft for obtaining Combined handling   (05 M)
      capacity of all the gates as 20 aircrafts per hour. Use following data, assuming that each gate is
      available for all the aircrafts class. assume any other data if required.

Aircraft class	Mix (%)	Average Occupancy Time (min)
1	15	25
2	35	45
3	50	60

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B	Write note on any 3	(15 M)

i   Types of rails.
ii   Konkan railway
iii   Dolphin
iv   Jetty and wharves
v   Classification of airport as per ICAO

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