Sixth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Transportation Engineering – II

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a.   What are the factors considered for laying new railway line? **(06 Marks)**
    b.   With the aid of sketches briefly explain the types of rails. **(06 Marks)**
    c.   Define permanent way. What are the ideal requirements of permanent way? **(08 Marks)**

2   a.   What are the advantages of welding of rails? **(06 Marks)**
    b.   With a neat sketch, explain
       (i) Dog spike   (ii) Screw spike **(06 Marks)**
    c.   Define sleeper density. For a rail of 12.80 metre length, calculate the quantity of materials required per km length of track. Assume sleeper density as $n+3$. **(08 Marks)**

3   a.   Determine the maximum train load that can be handled by a locomotive having four pairs of driving wheels of an axle load of 28 tonnes each. On a straight track the train runs at a speed of 90 kmph. Also determine the reduction in speed of train when it is moving on upward gradient of 1 in 200. If the train moves on upward gradient with 4° curve, what would be the reduction of speed? **(08 Marks)**
    b.   What are the objects of providing transition curve? Explain briefly the essential requirement of ideal transition curve. **(06 Marks)**
    c.   A 6° curve branches off from 3° main curve in an opposite direction in the layout of B.G. yard. If the speed on the branch line is restricted to 35 kmph, determine the speed restricted on main line. Assume permissible deficiency in cant as 7.6 cm **(06 Marks)**

4   a.   Draw a neat sketch of "Right hand turnout" and show the various parts on it. **(06 Marks)**
    b.   Find the lead and radius of curve for a B.G. turnout having d = 136 mm, θ = 1°34'27" and number of crossing as 1 in $8\frac{1}{2}$. **(04 Marks)**
    c.   Write a note on:
       (i) Marshalling yards   (ii) Locomotive yards. **(10 Marks)**

PART – B

5   a.   List and explain the aircraft characteristics which affect planning and design of airports. **(10 Marks)**
    b.   What is wind rose diagram? Explain any one method of constructing wind rose diagram. **(10 Marks)**

6   a.   With the aid of sketch explain the procedure of instrument landing system. **(06 Marks)**
    b.   Explain the various factors affecting on locations of exit taxiway. **(06 Marks)**
    c.   Determine the corrected length of runway for an airport site using the following data:
       (i)   Basic runway length = 2600 metres.
       (ii)   Airport elevation = 500 meters.
       (iii)   Airport reference temperature = 21°C
       (iv)   Runway effective gradient = 0.2% **(08 Marks)**

7 a. Explain the method of transfer of centre line into tunnel and providing grade. (10 Marks)
   b. With the aid of sketch, explain he needle beam method of tunneling. (06 Marks)
   c. What are the advantages of cement concrete lining? (04 Marks)

8 a. What are the factors to be considered for selection of harbor site? (06 Marks)
   b. What is dry dock? Explain the construction and uses of dry dock. (08 Marks)
   c. Compare with sketches, the wall type break water and mound type break water. (06 Marks)

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