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TE- CIVIL & INFRA - Sem VI - R-19-C-Scheme

(3 Hours)

[Total Marks : 80]

Notes :
1. Question No **ONE** is **Compulsory**.
2. Answer any **THREE** from remaining.
3. Draw **FIGURES** wherever necessary .Figures to the right indicate full marks.
4. **WRITE** proper question / sub question numbers on the left margin allotted in the answer sheet.
5. **ASSUME** any additional data if necessary and state it clearly.

1.   **Attempt (Any four)**
   a)   Describe the types of yards.   [05]
   b)   Explain the characteristics of MRTS.   [05]
   c)   Discuss the preliminary information required for airport infrastructure orientation.   [05]
   d)   Distinguish between dry dock & wet dock.   [05]
   e)   Draw plan and sectional elevation of bridge with its components.   [05]

2.   a)   If the branch Curve of 10° diverge from the main curve of 6° in an opposite direction in a layout of a BG track. Calculate the superelevation and the speed on the branch line. If the maximum speed permitted on the main line is 55 km/h.   [10]

   b)   Draw a typical cross section of the permanent way of rail infrastructure. Explain ideal requirements in a permanent way.   [10]

3.   a)   Length of the runway under standard conditions is 1720 m. The airport site has an elevation of 270 m. Its reference temperature is 35°C. If the runway is to be constructed with an effective gradient of 0.2%. Then determine the corrected runway length.   [10]

   b)   Explain factors affecting the location of exit taxiways.   [05]

   c)   List and describe the corrections applied to the basic runway length to determine the actual runway length..   [05]

4.   a)   What is MRTS? Discuss the major challenges in implementing MRTS projects in Indian cities.   [10]

   b)   Describe the requirements of a good port.   [05]

   c)   Explain the benefits of implementing ITS in urban areas.   [05]

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5. a) Explain the layout of a typical harbour and label its major components.   [10]
    b) Following are the costs involved in a uniform multiple span bridge construction.   [10]
        Calculate economic span.

Span (m)	5	10	15	20
Cost of girder (Rs.)	10000	22000	40000	65000
Cost of single pier & foundation (Rs.)	28000	32000	35000	45000

6. a) What are bearings in bridges? Describe different types of bridge bearings with neat   [10]
        labelled sketches.

    b) Explain different technologies in ITS.   [05]

    c) Distinguish between permanent bridges & temporary bridges.   [05]

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