CLASS: M. TECH.   SEMESTER : II
BRANCH: CIVIL   SESSION : SP/19

SUBJECT: CE542 BRIDGE ENGINEERING

TIME: 3.00 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall
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Q.1(a)   What type of bridge would you choose for a two lane traffic to cross 2000m? Explain your choice.   [5]
Q.1(b)   Briefly explain any 3 types of bridges.   [5]

Q.2(a)   Design RCC slab of a slab culvert with following given data: [10]
- Carriage way = Two lanes
- Foot paths = 1.25m on either side
- Clear Span = 9m
- Wearing coat = 100mm
- Materials: M20, Fe415
- Loading: IRC Class 70R Tracked Vehicle

Q.3   Find design moment and shear for main girder of a T beam and slab bridge deck having following   [10]
specifications:
- Carriage way = Two lanes
- Span = 20m
- Kerbs = 500mm x 250mm on either side
- Wearing coat = 80mm
- Materials: M20, Fe415
- Loading: IRC Class AA Tracked Vehicle

Q.4(a)   Describe behavior of any two of the following bridges in detail: [5+5]
   a) Box Girder Bridge
   b) Arch Bridge
   c) Suspension Bridge
   d) Cable Stayed Bridge

Q.5(a)   List various types of bearings used in bridges.   [5]
Q.5(b)   Design an elastomeric bearing such that: [5]
Max DL=300 kN,
Max LL=400 kN,
Longitudinal force due to friction=30 kN
Span of girder=18m
Estimated rotation at bearing due to loads on girder = 0.004 rad
Concrete Grade = M20
Total estimated shear strain due to creep, shrinkage and temperature = 0.0004

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