SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : BE (13A03701) **Course & Branch**: B.Tech - CE

Year & Sem: IV-B.Tech & I-Sem **Regulation:** R13

UNIT –III

BEAM SLAB BRIDGE

1. (a) Write a note on ' Impact Factor' for bridges.
   (b) Explain Pigeauds's method of determining B.M. in slabs.
2. Give limitations of Courbon's method &explain the design procedure of longitudinal girders by Courbon's method.
3. Design the interior slab panel of a RCC T-beam bridge for following data:
   Clear width of roadway = 7.5m
   Span C/C of bearings = 16m
   Live load: IRC class AA tracked vehicle
   Average thickness of wearing coat = 80mm
   Width of kerb = 600mm
   Use M 25 mix and Fe 415 grades.
4. Design the interior slab panel of a RCC T-beam bridge for following data:
   Clear width of roadway = 7.5m
   Span C/C of bearings = 18m
   Live load: IRC class AA tracked vehicle
   Average thickness of wearing coat = 80mm
   Use M 25 mix and Fe 415 grades.
5. Design interior panel of slab and a cantilever slab in a T-Beam bridge with the following data:

Effective Span	:	1800 mm
Carriage way (clear)	:	7500 mm
No. of Longitudinal Girders	:	3 Nos.
Spacing of Longitudinal Girders	:	3000 mm c/c
Width of the kerb	:	600 mm
No. of Cross Girders	:	5 Nos.
Spacing of Cross Girders	:	4500 mm c/c
Depth of rib of Longitudinal Girder	:	1500 mm
Depth of rib of Cross Girder	:	1500 mm
Thickness of Wearing Coat	:	100 mm
Loading	:	IRC Class AA Tracked Vehicle
Grade of Concrete	:	M30
Grade of Steel	:	Fe415.

6. Design the interior slab panel of a reinforced concrete T-beam bridge using the following data: Clear width of road way=8m effective span=18m, live load=IRC class AA. Use M20 grade of concrete and Fe-415 steel.

7. Design the interior slab panel of a reinforced concrete T-beam bridge using the following data: Clear width of road way=7.5m, span c/c of bearings=12m, live load=IRC class AA tracked vehicle average thickness of wearing coat=75mm Use M25 mix and Fe-415 grades.

8. A reinforced concrete simply supported slab deck is to be designed for a national highway road bridge having the following data: Width of carriage way=15m, kerbs=600mm wide, clear span=6m, type of loading IRC class AA. Design the deck slab by using Pigeaud's curves. Use M25 grade concrete and Fe-415 steel.

9. Design the intermediate longitudinal girder of the bridge by Courbon's method for the maximum loading of class AA tracked vehicle. An RCC bridge consists of 3 longitudinal girders and 5 cross beams with the span of 15m. Assume the other preliminary dimensions of this two lane bridge as per the IRC specifications, moderate exposure and cement concrete wearing coat.
10. A) Write the general features of beam & slab bridge
    B) Write about pigeauds method.
    C) Write the different types of rational methods.
    D) Define impact factor.
    E) List out the limitations of the courbon's method.

Prepared by: **M.MANIKANTAN**.

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QUESTION BANK (OBJECTIVE)

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1. A T- Beam bridge is constructed when the span is between [ ]
   A) 10-20m B) 5-10m C) 15-20m D) 10-25m
2. In T- beams, the number of longitudinal girders depends on the------of the road. [ ]
   A) Length B) width C) depth D) all
3. Pigeauds method is widely used for design of [ ]
   A) One way slabs B) two way slabs C) columns D) footings
4. Pigeauds curves were developed for thin plates using the------theory [ ]
   A) Plastic analysis B) inelastic C) elastic flexural D) all
5. For shorter span, The bending moment in the slabs can be calculated by [ ]
   A) $W(m_1+m_2)$ B) $W(m_2+0.15m_1)$ C) $W(0.15m_1+m_2)$ D) $W(m_1+0.15m_2)$
6. For longer span, The bending moment in the slabs can be calculated by [ ]
   A) $W(m_1+m_2)$ B) $W(m_2+0.15m_1)$ C) $W(0.15m_1+m_2)$ D) $W(m_1+0.15m_2)$
7. Guyon-massonet method is based on------analysis [ ]
   A) Orthotropic plate B) isotropic plate C) anisotropic plate D) beam-column
8. The supporting girders share the live load in varying proportions depends on [ ]
   A) Flexural stiffness of the deck C) both a&b
   B) position of the live load on the deck D) none
9. Formula for effective width of dispersion (b_{ef}) [ ]
   A) 1.2x B) 1.2+b1 C) b1 D)$1.2x+b_1$
10. How many girders are normally provided for two-lane bridges [ ]
    A) 3 B) 4 C) 1 D) 2
11. In solid deck slabs the tension R.F shall not less than----% of the total c/s area using HYSD bars
    (A) 0.11 (B) 0.12 (C) 0.15 (D) 0.17 [ ]
12. In solid deck slabs the tension R.F shall not less than----% of the total c/s area using Fe-250 bars [ ]
    (A) 0.11 (B) 0.12 (C) 0.15 (D) 0.17
13. The minimum dimension of a dredge hole should be not less than [ ]
    (A) 4m (B) 2m (C) 6m (D) 8m
14. -------bridge deck comprises of a reinforced concrete continuous slab supported by steel plate girders. [ ]
    (A) Composite (B) cantilever (C) cable wire (D) continuous

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