| Reg. No. | | | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|--|--|
|----------|--|--|--|--|--|--|--|--|--|--|



VII SEMESTER B.TECH. (CIVIL ENGINEERING) **END SEMESTER EXAMINATIONS, NOV/DEC 2018** SUBJECT: BRIDGE ENGINEERING [CIE 4019] **REVISED CREDIT SYSTEM** (27/11 /2018)

Time: 3 Hours

MAX. MARKS: 50

| ا مرا | | 4.0 | Condidates |
|-------|------------|-----|-------------|
| Ins | structions | το | Candidates: |

- ✤ Answer ALL the questions.
- ✤ Missing data may be suitably assumed.

| 1A. | Explain impact load consideration for IRC Class A and B loading, Class AA loading or Class 70R loading | (04) | CO1 |
|--------------|--|------|------------|
| 1 B . | Describe economic span. What are the assumptions? | (04) | CO1 |
| 1C. | Write pipe designation and utility of Non pressure pipes used in construction of pipe culverts. | (02) | CO2 |
| 2A. | Design a deck slab bridge for the following data (check for shear not necessary) Clear distance between abutments = 6.5 m Width of Foot path = 1 m on either side Width of bearing = 400 mm Wearing coat = 80 mm average Loading = IRC Class AA (Tracked) Width of road (two lane) = 7.5 m Materials = M 25 grade concrete and Fe 415 Steel. Assume, Overall thickness of slab= 80mm/m | (10) | CO3 |
| 3. | Explain with the help of neat sketch locating various components of Well foundation | (10) | CO4 |
| 4A. | With the help of neat sketch, Write short note on(i). Steel Rocker bearing(ii). R.C.fixed (rocker) bearing | (04) | CO4 |
| 4B. | Design an elastomeric unreinforced neoprene pad bearing to suit the following data: Vertical load (sustained) : 220kN Vertical load (Dynamic) :40kN 4B Horizontal force (sustained): 20kN Horizontal force (dynamic) : 10kN Modulus of rigidity of elastomer 'G': 1N/mm ² Friction coefficient: 0.20 Adopt, dimension of elastomeric bearing: a = 250mm & b = 500mm | (06) | CO4 |
| 5. | A prestressing concrete slab deck of a bridge is 425mm thick with an effective span of 8m. The service load is computed as 305 kNm/m at centre of span section. If the compressive stress permissible at transfer is 16 N/mm ² and tensile stresses are not permitted, check the adequacy of section & estimate the minimum prestressing force & also calculate the corresponding eccentricity at mid span section. Assume loss ratio = 0.8 | (10) | CO5 |