



**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

TEST – 1

Even Semester: 2018-19

Course Code: CIV 304

Course Name: Bridge Design

Programme & Sem: B.Tech (DE) & VI Sem

Date: 06 March 2019

Time: 1 Hour

Max Marks: 40

Weightage: 20%

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Write legibly and draw clear diagrams wherever required.
- (iv) Scientific and non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **four** marks.

(4Qx4M=16)

1. List the components of planning of a bridge.
2. What are the assumptions considered for the economic span of a bridge?
3. According to IRC 6, what are the various loads and stresses that can affect a bridge?
4. Write a short note on the dynamic effect of load on bridges for various IRC classes of loading.

Part B

Answer the Question. Question carries **ten** marks.

(1Qx10M=10)

5. Give a diagrammatic representation of IRC Class AA loading

Part C

Answer the Question. Question carries **fourteen** marks.

(1Qx14M=14)

6. A T-beam and slab bridge needs to be provided across a river given the following data.

Distance, m	0	12	24	50	58	80	85
RL, m	11.2	9.7	4.3	2.5	5.5	10.4	10.8

High flood level = 10.4 m

Manning's co-efficient = 0.03

Slope of the river bed = 1 in 1600

Maximum allowable velocity under the bridge = 1.2 x normal velocity

Use Molesworth formula for afflux calculation.



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TEST – 2

Even Semester: 2018-19

Course Code: CIV 304

Course Name: Bridge Design

Program & Sem: B.Tech & VI Sem (DE)

Date: 16 April 2019

Time: 1 Hour

Max Marks: 40

Weightage: 20%

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) IRC 6 – 2016 and a copy of IRC 21 – 2000 – page 52, 53 is allowed in the exam.
- (iv) Write legibly and draw clear diagrams wherever required.
- (v) Scientific and non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **two** marks.

(5Qx2M=10)

1. List the categories of well foundations.
2. How are foundations categorized?
3. What are piles?
4. What are bearings?
5. What is an expansion joint?

Part B

Answer the Question. The Question carries **ten** marks.

(1Qx10M=10)

6. Draw a neat labelled diagram of a well foundation and write a brief description of each component.

Part C

Answer the Question. The Question carries **twenty** marks.

(1Qx20M=20)

7. Design a RCC slab culvert for a state highway to suit the following data and calculate the design moment and shear and find only the main steel required for the RCC slab.

a.	Carriageway – 2 lanes = 7.5 m	f.	Clear span = 8 m
b.	Kerb width = 0.4 m	g.	Bearing of the slab = 0.5 m
c.	Parapet width = 0.3 m	h.	Materials used = M25 grade of concrete and Fe500 grade of steel
d.	Height of kerb = 0.2 m	i.	Thickness of wearing course = 80 mm
e.	Live = IRC class AA tracked vehicle		



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END TERM FINAL EXAMINATION

Even Semester: 2018-19

Course Code: CIV 304

Course Name: Bridge Design

Programme & Sem: B.Tech & 6th Semester

Date: 23 May 2019

Time: 3 Hours

Max Marks: 80

Weightage: 40%

Instruction:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) IRC 6 – 2016, Pigeaud Charts and a copy of IRC 21 – 2000 – page 52, 53 is allowed in the exam.
- (iv) Write legibly and draw clear diagrams wherever required.
- (v) Scientific and non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **two** marks. (10 Q x 2 M = 20 Marks)

1. Choose the most appropriate answer from the given options:
 - i. The supporting structure located at the end of a bridge is called
 - a. abutment
 - b. pier
 - c. wing wall
 - d. column
 - ii. A caisson that is open at the top and closed at the bottom
 - a. box caisson
 - b. open caisson
 - c. pneumatic caisson
 - d. Excavated caisson
 - iii. A caisson that is open at the top and bottom
 - a. box caisson
 - b. open caisson
 - c. pneumatic caisson
 - d. Excavated caisson
 - iv. An intermediate supporting structure of a bridge
 - a. abutment
 - b. pier
 - c. wing wall
 - d. column
 - v. Slender structural elements placed in the ground to increase soil bearing capacity
 - a. caisson
 - b. pile
 - c. abutment
 - d. bearing
 - vi. Total load for a Class AA – wheeled vehicle according to IRC 6 – 2016
 - a. 700 kN
 - b. 400 kN
 - c. 350 kN
 - d. 200 kN
 - vii. A caisson that is open at the bottom and closed at the top
 - a. box caisson
 - b. open caisson
 - c. pneumatic caisson
 - d. Excavated caisson