APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Scheme for Valuation/Answer Key

Scheme of evaluation (marks in brackets) and answers of problems/key

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: CE463

Course Name: BRIDGE ENGINEERING

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer any two full questions, each carries 15 marks. **Marks**

1 a) Effect of wind load in accordance with IRC 6 specifications. (7)

b) Explanation of longitudinal forces acting on bridges (IRC 6). (8)

2 a) List factors to be considered while selecting site for a bridge. (8)

b) IRC specifications for Road bridges-loads, carriageway, clearances (7)

3 a) Classification of bridges. (8)

b) Need of Impact factor, its variation with span and type of loading as per IRC 6 specifications. (7)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Forces acting and critical load combinations on box culverts-3 marks (10)
Analysis and Design of top &bottom slab, side wall-4 marks
Reinforcement detailing-3 marks

b) Definition of Effective width of dispersion, IRC code specification for simply supported slabs and cantilever slabs, sketches of wheel dispersion area. (5)

5 Design must confirm with IRC 6,21 or112 specifications. (15)
DL BM-4 marks, LL BM- 5 marks
Design of deck slab- 3 marks, Reinf. Detailing-3 marks

6 Design must confirm with IRC 6,21 or 112 specifications. (15)

Design of intermediate longitudinal girder.

Load calculation-3 marks

Reaction factor-2 marks

DL & LL BM - 3 marks

Design of girder - 4 marks

Reinforcement-3 marks

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Design principles of a prestressed concrete bridge with neat sketches.	(10)
	b)	Types of foundations- 4 marks Any one foundation in detail with neat sketch- 6 marks	(10)
8	a)	Selection of bearing dimension from Table in IRC 83- 1 mark Thickness of elastomeric pad-2 marks Different Checks: Translation, Rotation, Friction, Shear stress- 3 marks x 4 = 12 marks	(15)
	b)	Description of Elastomeric bearings with fig.	(5)
9		Stability analysis of abutment : Load calculation- 5 marks Earth pressure-- 3 marks Check against overturning-4 marks Check against sliding-4 marks Check for maximum and minimum base pressure-4 marks.	(20)

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