

Hall Ticket Number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Code No. : 16134

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD*Accredited by NAAC with A++ Grade***B.E. (Civil Engg.) VI-Semester Main & Backlog Examinations, June-2022****Design of Concrete Structures**

Time: 3 hours

Max. Marks: 60

- Note: i) Answer all questions from **Part-A** and any **THREE** from **Part-B**
 ii) Use of IS 456, design tables for water tanks and Bridge code are permitted
 iii) Assume any missing data suitably

Part-A (10 × 2 = 20 Marks)

Q. No	Stem of the Question	M	L	CO	PO
1	Draw neat sketches for Cantilever retaining wall and label them.	2	1	2	1
2	Distinguish between strap footings and strip footings?	2	1	1	1
3	List out various forces acting on retaining wall?	2	1	2	1
4	What do you mean by freeboard in circular water tank?	2	1	3	1
5	What is monolithic structure?	2	1	3	1
6	Differentiate between rigid and flexible base?	2	1	3	1
7	Name any four types of RCC Bridges.	2	1	4	1
8	Mention different types of IRC loadings for road bridges.	2	1	4	1
9	Draw the component parts of bridges.	2	1	5	1
10	List out the advantages of T- Beam bridge over the Simply supported slab bridge.	2	1	5	1
Part-B (13 + 13+14 = 40 Marks)					
11	Design of counterfort retaining wall to retain an earth 4.5 m above GL level using the following data Spacing of counterfort = 3m c/c The density of soil is 18 kN/m ³ Angle of internal friction is 25 degrees The SBC of soil 175 kN/m ² The coefficient of friction between soil and concrete is 0.5 Use M20 concrete and Fe 415 steel. Sketch the reinforcement details.	13	3	2	1,2
(or)					
12	Design a reinforced concrete combined footing to carry two columns of size 450 × 500mm carrying 1800kN and 450 × 500mm size carrying 1500kN. The c/c distance between two columns is 2.5m. Use M25 grade concrete and Fe415 steel. The SBC of soil is 200kN/m ² .	13	3	1	1,2

Contd... 2

13	Explain the design procedure for circular water Tank. (or)	13	2	3	1,2
14	Design a rectangular water tank of 150 m ³ capacity resting on ground with flexible base. Use M25 grade of concrete and Fe 415 Steel. Draw the reinforcement diagram.	13	2	3	1,2
15	Design an Interior panel of RCC T- beam deck slab Bridge for Highway with following data Span of the bridge = 25 m Footpath on either side 1 m wide Width of carriageway = 7.5 m Spacing of longitudinal girders 3.3 metres Spacing of cross borders 3 metres Thickness of wearing coat 75mm Loading IRC class AA tracked vehicle. materials M25 and Fe 415 use M1 = 0.055 and M2= 0.021 (or)	14	4	5	1,2
16	Design a RCC slab Bridge with clear width of roadway is 7m and the clear span of 5m for IRC class AA loading. The average thickness of the wearing coat is 75mm. Use M25 grade of concrete and Fe 415 Steel. Sketch reinforcement details.	14	4	5	1,2

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	26%
iii)	Blooms Taxonomy Level – 3 & 4	54%
