U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

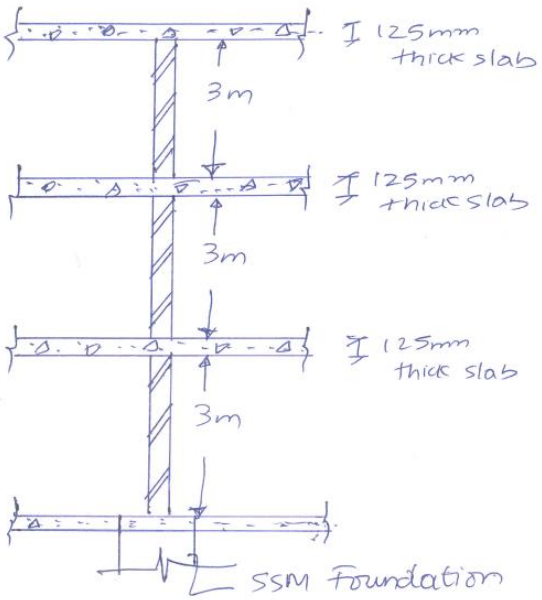
Programme: B.E. **Semester: VI**
Branch: Civil Engineering **Duration: 3 hrs.**
Course Code: 20CV6PESMA **Max Marks: 100**
Course: Structural Masonry

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.
3. Use of IS 1905 (1987 and revised ed.) permitted.

SUPPLEMENTARY EXAMS 2024

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

				CO	*PO*	Marks
			UNIT - I			
1	a)	Compute the density of the brick and block. Brick dimension – 220mm x 105mm x 75mm; Weight of the brick = 3.25 kgs Block dimension – 400mm x 200mm x 200mm; Weight of the block = 32 kgs		*CO1*	*PO1*	**05**
	b)	The following table presents the test details. Compute the water absorption and compressive strength of both the masonry units. Comment on the results obtained. Unit type | Dimensions (mm) | Oven dry weight (kgs) | Saturated weight (kgs) | Ultimate failure load (kN) Brick | 230 x 105 x 75 | 3.07 | 3.47 | 120 SMB | 305 x 143 x 100 | 7.58 | 7.93 | 500		*CO1*	*PO2*	**10**
	c)	What are the desirable properties that a masonry mortar should exhibit?		*CO1*	*PO1*	**05**
		UNIT - II				
2	a)	Derive an expression to obtain the lateral stresses in brick masonry when subjected to compression, for the case, modulus of masonry unit is greater than the modulus of mortar.		*CO2*	*PO2*	**12**
	b)	What are the effects of bad workmanship in masonry?		*CO2*	*PO1*	**08**
		UNIT - III				
3	a)	Explain any one test procedure for evaluating the flexural strength of masonry. Explain with neat sketches.		*CO2*	*PO1*	**10**

		b)	Determine the shear strength of the concrete block triplet from the data given below. i) Ultimate load at failure = 90 kN ii) Size of the blocks = 400 x 150 x 200 (dimensions in mm)	*CO2*	*PO2*	**05**
		c)	Explain the diagonal shear test with the help of a neat sketch.	*CO2*	*PO1*	**05**
			UNIT - IV			
	4	a)	State the reasons for adopting reinforced masonry. Discuss the BIS codal provisions for reinforcing masonry.	*CO2*	*PO1*	**10**
		b)	Sketch neatly four typical ways of providing reinforcement in masonry.	*CO2*	*PO1*	**10**
			OR			
	5	a)	Bring out a comparison between unreinforced and reinforced masonry.	*CO2*	*PO1*	**10**
		b)	With the help of neat sketches, show how vertical and horizontal reinforcement are incorporated in masonry.	*CO2*	*PO1*	**10**
			UNIT - V			
	6		The cross-section of a 3 storeyed load bearing masonry building is as shown in Fig.Q.6. Design the interior cross wall with burnt bricks. Assume the thickness of the wall as 230mm and the unit weight of burnt brick 18 kN/m^3 and density of RCC as 25 kN/m^3. Assume LL on floor = 2 kN/m^2 and LL on roof = 1.5 kN/m^2. Load due to WPC = 1 kN/m^2.  Fig Q1(6)	*CO3*	*PO3*	**20**
			OR			
	7		Design the interior wall of a 3-storeyed masonry building. Assume the thickness of the walls suitably, unit weight of masonry as 20 kN/m^3 and density of RCC as 25 kN/m^3. Assume imposed load on floor and roof = 2 kN/m^2 and 1.5 kN/m^2. Load due to waterproof course = 0.7 kN/m^2. Take thickness of RC slab = 100mm.	*CO3*	*PO3*	**20**

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