P P SAVANI UNIVERSITY

Seventh Semester of B. Tech. Examination

December 2021

SECV4011 Structural Design II

01.12.2021, Wednesday **Time: 09:00 a.m. To 11:30 a.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section I

Q - 1	Write down the criteria for bolted connections and Welded connections with IS Code Clause: Pitch Distance, Gauge Distance, Edge Distance, End Distance, Staggered Distance, Intermittent weld, Size of weld, end return.	[8]
Q-2 (a)	Design Axially loaded equal angle section to resist the load of 1500Kn. Assume necessary data. Do necessary check.	[8]
	Or	
	Determine load carrying capacity of column ISHB300 @577 N/M length of column is 2.5m and both ends are pinned.	
Q-2 (b)	Design Double angle section to resist the axial load of 1200kn Assume necessary data. Member is connected by welding with 10mm G.P.	[7]
Q-3	Design a simply supported beam of 6m span carrying RCC floor Capable of providing lateral restraint to the top compression flange UDL of 60kN and 100 kN/m of Imposed load is acting on it, apart from that beam is carrying a point load of 100kN at mid span. Do check of moment capacity only.	[7]

Section II

Q-1	Design a slab foundation for a column for a column ISHB 300 to carry a foundation axial load of 1200kN. Assume Fe410 and M30 Concrete take SBC of soil as 220 kN/m^2 and f_y = $250n/mm^2$	[10]
	Or	
	Design suitable single lacing system for a column composed of 2 ISMC 300 at 35.8 Placed back-to-back at clear spacing of 200mm. Axial force on load is 1500Kn. Effective length of column is 4m.	
Q-2	Calculate Wind load Pressure Co-efficient for industrial building located at Surat with span of 15m and length of 90m. roofing material is galvanized sheet. Terrain is an open industrial area. Class of building is B and height is 8m, rise of building is 3. Assume any necessary data.	[10]
Q-3	Write down the design steps for the rectangular water tank.	[10]