SARVAJANIK UNIVERSITY

S-2025 Date: 21-05-25 Time: 09:30 AM to 12:30 PM
Backlog Exam

B. Arch-III, - SEMESTER– V EXAMINATION
Course Code: BRAR12502 **Total Marks: 180**
Course Name: Building Technology III- Advanced Construction, structure and services
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q1.		Answer the following (Do as Directed)	36 Marks
	1	In general, the most destructive earthquake waves are the _____ A. P waves B. S waves C. Surface waves D. Q waves	
	2	Central core of a tall building is designed to take_____Load.	
	3	In tall building generally Tube in tube systems are put. (True/ False)	
	4	Define Air Conditioning	
	5	Bundled tube system is made up of separate tubes put together. True / False	
	7	Concentrically braced frame system works best in wind zone. True/ False	
	8	Air Conditioning is done for the Purpose of Thermal Comfort True / False	
	9	The location on earth directly above the focus in earth quake is known as _____	
	10	Fire lift is always provided separate from Passenger Lift and Goods Lift. True / False	

	11	Steel structure is more preferred in earthquake zone because of its high damping performance True / False	
	12	As height of building increases wind load _____	
	13	Intensity of an earthquake remains the same everywhere. True / False	
	14	In India, zone-1 means area having moderate earthquake. True / False	
	15	Staggered truss system uses diaphragm action of slab to transfer load. True / False	
	16	In India, total _____Earthquake Zones are scheduled as per the new drafted Code.	
	17	Sky Scrapers have two systems of elevators, direct express elevators for uppermost floors and local elevators for intermediate floors. True / False	
	18	Elaborate the term A.H.U.	
	Q.2	Answer the following (Any Four)	36 Marks
	1	Explain working principle of traction elevator. Draw its diagram showing all its important components.	
	2	What is the difference between natural frequency & forced frequency?	
	3	Explain Slip form construction Technology in detail for tall buildings. Also discuss about its types.	
	4	Which lateral load systems are used in a tall building in earthquake zone and why?	
	5	Explain the concept of core & outrigger system and why it is used? Which structural members as outriggers we can use & where?	
	Q.3.	Answer the following (any Three)	54 Marks
	1	What is the significance of re-entrant corner in buildings? How does a building with re- entrant corners behave during an earthquake? What measures can be taken to reduce their impact.	

	2	How a building on sloping terrain behaves during earthquake? What measures should be taken to avoid failure?	
	3	Explain behavior of load bearing structure in earthquake? How it can be rectified so that building is safe in earthquake.	
	4	What are non-structural elements? how it affects behavior in earthquake zone? give remedial measures for the same.	
	Q.4.	Answer the following (any Three)	**54 Marks**
	1	Explain working principle of hydraulic elevator. Draw its diagram showing all its important components.	
	2	Consider a developer office of an estate having G + 2 floor having the approximate area of 3.5 m(Height) x 6 m x 6m. (Each floor) Ground Floor is waiting area, conference room and common toilet First Floor is working staff of the firm Second floor is main office of two partner and one conference room and waiting area Provide air conditioning for the same with the following considerations: a) Which typology of System of Air-conditioning will you suggest?? Give Reason for the same and justify your selection based on typology of space and climatic consideration. b) Draw/ sketch, labelled wall section and roof plan showing the distribution channels /ducts for the AC / HVAC System selected along with placement of machines / equipment.	
	3	What do you understand by 3 generation of tall buildings? Write down about any 3 commonly used building construction materials.	
	4	Consider an Entrance lobby of Size 20 m x 15 m of a HIGH-RISE MIX USED BUILDING. (28^{th} floor) Answer the following a) Draw a labelled diagram with dimensions (Section& Plan) of the Typology of Vertical Transport selected by you. b) Which Types of Vertical / Automated Transportation would you Suggest if the building is having a Seven Storied Shopping Mall. Give Reason for your answer. c) State which type of Lifts are best for Physically Challenged People for Vertical Transportation. Sketch / Draw a small foyer which facilitates the same.	