

SARVAJANIK UNIVERSITY

S-2024 Date: 15-07-24 Time: 01:30 PM to 04:30 PM

Remedial Exam

B. Architecture - SEMESTER- 6 EXAMINATION

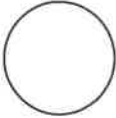
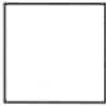
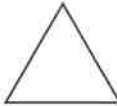
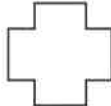
Course Code: BRAR12602

Total Marks: 180

Course Name: Building Technology IV – Advanced Construction, Structure & Services

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Draw Illustrations, Sketches, Labelled Diagrams where ever applicable

Q1.	Answer the following (Compulsory)	32 Marks
1)	Plate girder are made from a.) Plates only b.) Plates & angle section c.) Only angle section d.) all kind of sections	
2)	Double curvature structure are good for wind stability point of view. (True/ False)	
3)	Cable stayed structure uses compression & tension member to transfer load (True/ False)	
4)	Stability due to wind is crucial in tensile structure. (True / False)	
5)	Castellated girders are used in earthquake zones. (True/ false)	
6)	For large span structure following system is used a.) Double layer two way grid b.) Single layer two way grid. c.) single layer three way grid d.) double layer & triple layer grids.	
7)	Who is the founder of Geodesic Dome? a.) Robert Pinero b.) Buckminster Fuller c.) Albert Drone d.) Renzo Piano	
8)	Which shape provides the highest strength in terms of structural formulation? a.)  b.)  c.)  d.) 	
9)	Cross Laminated Timber consists of layers of kiln-dried dimension lumber placed parallel to one another and then nailed to form structural panels. (True / False)	
10)	Lightweight Insulating Concrete (LWIC) Roof Deck System is made up of four elements: _____, _____, _____, _____, lightweight insulating concrete, and finish membrane.	
11)	Tensile fabric structures are characterized by the _____ of a membrane system, typically with _____.	
12)	Parameters related to solar gain control such as thermal comfort and visual comfort are more difficult to control when using highly glazed curtain walls. (True / False)	

13)	Frequency and pitch of sound it is measured in _____.	
14)	Reverberation time (RT) is the time required for the sound in a room to decay over a specific dynamic range (True / false)	
15)	Classification of Fire as ABCD helps in correct selection of _____.	
16)	Oxygen, Heat and Fuel are three attributes of the _____.	
Q.2	Answer the following design problem.	40 Marks
A.)	Design a large span cable stayed roof structure having 20,000 square meter area. Choose plan of any shape, for a multipurpose gathering space. Decide a specific form stable against wind. Explain load transfer, draw plan, section, sketch showing dimension of structural members, approximate cross section, size & connection details at various joint as per your design. Explain material you choose.	
B.)	Explain following terms along with load transfer and sketches (Any two) 1. Cable stayed structure 2. Suspension cable structure 3. Double layer three way space frame.	
Q.3.	Answer the following sort notes. (Answer any three)	48 Marks
1.)	Describe a table structure of shell structures in details with example.	
2.)	Describe Folded plates n detail with example.	
3.)	Explain 4 types of materials used in 'Transparent roofing' of Large Span structures.	
4.)	Difference between Dowel Laminated and Nail Laminated Timber? Draw neat sketches also.	
5.)	Explain in detail any 4 types of building skin materials used as an exterior façade in Large Span buildings.	
Q.4.	Answer the following in detail. (Answer any Three)	60 Marks
a)	Enlist the types the Acoustical defects and explain any two in detail.	
b)	Enlist the types of Sound insulating techniques and explain any two in detail.	
c)	Consider An Atrium Of Area Of 70m X 50m X 120 M. With Help Of Illustrations And Labelled Diagram Design A Service Core With Following Features For Fire Safety: a) A Layout Of Escape Route Of The Atrium Along With Position Of Sprinkler System, Smoke Detectors, Alarm System, Main Door And Openings For Windows / Ventilation System. (10 Marks) b) Draw A Service Core Indicating The Position Of Pressurized Staircase Cabin, Fire Lifts, Ducts For Services, Fire Door, Ventilation System. (10 Marks)	
d.)	Draw A Block On A Site Of 1500 Meter Square Having Three Distinct Functional Areas. (Reception Area, Activity Area, Basement) a) What is Compartmentation for Fire Safety ?? Indicate the Compartmentation in the Plan along with different Escape Route For all three areas. (10 Marks) b) List all the Provisions in GDCR as required for the Site Layout (Site Margins, Width and Height Of Main Entrance Door and Steps, Location and Number Of Assembly Area Distance between two staircases etc) (10 Marks)	