

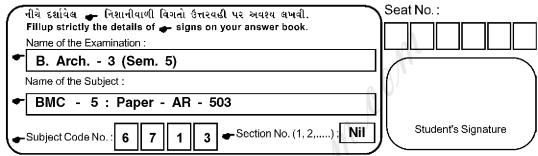
SD-6713

B. Arch. - III (Sem. - V) Examination May / June - 2011 BMC - V : Paper - AR - 503

Time: 3 Hours [Total Marks: 100

Instructions:

(1)



- (2) Figures on right indicate full marks.
- (3) Discussion based answers to be written point wise.
- (4) Support your answers with neat sketches.
- 1 (a) State true or false.

10

- (i) Chemicals are used to aerate the concrete for light weight concrete structures.
- (ii) TERI is an organization which helps architects to understand energy efficiency of materials.
- (iii) A geodesic line is the shortest distance between two points on a curved surface.
- (iv) When between two upright angles a family of paraboloid is suspended it is hyperbolic paraboloid.
- (v) Petronas towers is an example of rigid framed structure.
- (vi) Tadao Ando's Modern Art Museum has flat slab supported on Y columns.
- (vii) Three column edge profiles for trusses are vertical edge, cornice edge, mansard edge.
- (viii) The pre-stressed concrete beam experiences continuous state of tension.
- (ix) Metal domes need to be anchored and not taken deep in the soil.
- (x) Light weight concrete is used in in-situ construction.

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	(b)	Answer with appropriate sketch:	10
		(i) Load distribution in Arch. system.	
		(ii) Folded plates on circular plan.	
		(iii) Lunes and sectors of a dome.	
		(iv) Kibitka and its elements.	
		(v) Tepee concept.	
2	(a)	Explain the advantages of pre-stressing over RC technology. What are the materials generally needed for the same ?	10
	(b)	Based on your case studies suggest a suitable design and layout for exhibition pavillion measuring 25×25 meters using space frames (with suitable exhibition modules) for the purpose of exhibition of Books. Sketch the plan, section and any one joinery detail maintaining proper proportions.	15
		OR	
2	(b)	Using thin shells with double curves, suggest a roofing system for a community club (for yoga/meditation etc) measuring about 15 m radius (assume suitable data) show plan, section, with choice of materials and any one joinery detail.	15
3	(a)	What are the advantages of modular construction technology?	10
	(b)	Which are the different types of bracings possible for tall structures? Discuss with an example.	10
4	(a)	Mention different types of double layer grid configurations for space frame with sketches, also explain the joinery for the same.	10
	(b)	What are shell structures? Discuss with construction technique for the same.	10
5	Attempt any three:		15
	(i)	Metal dome configurations.	
	(ii)	Tree support in space grid structures.	
	(iii)	Light weight concrete for pre-cast components.	
	(iv)	Principal components of tensile structures.	
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