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SD-6713

B. Arch. - III (Sem. - V) Examination

May / June – 2011

BMC - V : Paper - AR - 503

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. Arch. - 3 (Sem. 5)**

Name of the Subject :

☛ **BMC - 5 : Paper - AR - 503**

☛ Subject Code No. : **6 7 1 3** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(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.

(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.
