



UG-6713

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

May\June - 2012

**AR - 503 : Building Material & Construction - V
(Syllabus B)**

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उतरवडी पर अवश्य लभवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. Arch. - III (Sem. - V) (ATKT)

Name of the Subject :
AR - 503 : Building Material & Construction - V

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

Seat No. :

Student's Signature

- (2) Figures on the right indicate full marks.
(3) Discussion based answers to be written pointwise.
(4) Support your answers with neat sketches.

- 1 (a) State true or false : 10
- (i) A chiseled form in tall structure helps to accommodate lateral stresses.
(ii) Capsule style self supporting boxes can be arranged in English bond and criss-cross pattern in tall structure.
(iii) The pre- stressed concrete beam experiences continuous state of tension.
(iv) Permanent anchorages are required in pre-tensioning technique.
(v) Light weight concrete is use in in-situ construction.
(vi) Reinforcement is laid in the compression zone for prestressing.
(vii) Prefabricated structures are a good solution in erthquake prone zone.
(viii) Standardization of components can help in mass housing project.

- (ix) A geodesic line is the shortest distance between two points on a curved surface.
- (x) Geodesic construction work on the principle of lunes and sectors of the hemisphere.
- (b) 10
- (i) Sketch a labelled figure of common military tent showing all typical elements.
- (ii) Explain different elements of suspension structures with the help of neat sketch.
- 2 (a) Explain the advantages of pre - stressing over RC technology. How does post tensioning work ? Explain with sketches. 10
- (b) Based on your case studies suggest a suitable design and layout for horticulture exhibition, in the site admeasuring $100\text{m} \times 100$ meters, with suitable exhibition modules. Sketch the plan, section and any one joinery detail maintaining proper proportions. 15
- OR**
- (b) Using space frame system, suggest a roofing system for a community shed (for yoga/meditation etc) measuring about 20m 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 ? Give example of two roofing systems which can be used with modular technology. 10
- (b) Explain tube in tube system for tall structures. Discuss with sketches and an example. 10
- 4 (a) Discuss different grid configuration in large framed structures with sketches. 10
- (b) Draw sketches of Generatix, Conoid, Tree type support with example of existing building constructed on the principle. 10
- 5 Attempt any **three** : 15
- (i) Hyperbolic paraboloid shell.
- (ii) Light weight concrete for pre - cast components.
- (iii) Principal components of suspension bridges.
- (iv) Advantages of geodesic domes.