



KD-6712

B. Arch. III (Sem. V) Examination

December - 2012

**ARC - 502 : Building Materials & Construction
Technology-V**

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कभवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. Arch. III (Sem. V)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="ARC - 502 : Buildi. Mater. & Constr. Techn.-V"/>	<input type="text"/>
Subject Code No. : <input type="text" value="6"/> <input type="text" value="7"/> <input type="text" value="1"/> <input type="text" value="2"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="Nil"/>	<input type="text"/>
	Student's Signature

- (2) Figures to 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

1. Standardization of components can help in mass housing project.
2. TERI is an organization which helps architects understand energy efficiency of materials.
3. Geodesic construction works on the principle of lunes and sectors of the hemisphere.
4. Permanent anchorages are required in pre-tensioning technique.
5. Light weight concrete is preferably used in in-situ construction.
6. The pre stressed concrete beam experiences continuous state of tension.
7. Flexural system consists of straight line like arrangement of members like beam, girders etc.
8. Pneumatic structures are type of shell structures.
9. Three column edge profiles for trusses are vertical edge, cornice edge, mansard edge, shells are broadly classified into single, double type.
10. Cable stayed structures and suspension structures have similar system of load dispersion.

- (B) Answer with appropriate sketch** **10**
1. Hyperbolic paraboloid roof over a square plan (plan and elevation)
 2. Single masted cable stayed structure with proper labeling.
 3. Connectors for space frame joineries (any two types).
 4. Bending moment diagram of simple post and beam with zone indications.
 5. Kibitka type tent (plan and elevation)
- Q-2 Discuss the advantages of geodesic domes. 10
(A)
- Q-2 Explain the advantages of pre stressing over RC technology. What are the 10
(B) materials generally needed for the same?
OR
- Q-2 Discuss the method of post tensioning with any one technique in detail. 10
(B)
- Q-3 Out of any roofing system studied in your group, suggest a roofing system 15
(A) for an out door assembly (for yoga/meditation etc) measuring about 15m radius (assume suitable data) show plan , section , with choice of materials and any one joinery detail.
- Q-3 Draw neat sketches and explain the basic features: 15
(B)
1. Two bay symmetrical pitch lattice steel cantilever (umbrella) roof.
 2. Steel portal frames for spans between 16 and 35m.
 3. Details of corrugated steel cladding over the lattice roof truss.
- Q-4 Write short notes on: (any three) 15
(A)
1. Prestressed concrete double T beam.
 2. Steel deck and concrete floor.
 3. Hyperbolic paraboloid shell .
 4. light weight concrete for pre cast components
- Q-4 Write short notes on: (any three) 15
(B)
1. Tree type support for framed structures
 2. Double layered grid configuration (any one)
 3. Advantages of geodesic domes
 4. Principle components of suspension bridges