

27.1.09

Ex/BESUS/AR-502/09

B.Arch. Part-III 5th Semester Examination, 2009

**Materials and Methods of Construction-IV**  
**(AR-502)**

Time : 3 hours

Full Marks : 70

Use separate answerscript for each half.

**FIRST HALF**

(Answer any THREE questions.)

1. a) Mentions three basic principles of thermal insulation of building in a topical climate.  
b) What is the difference between slab/block insulation, blanket insulation and loose fill insulation?  
c) Explain with sketches the different methods of wall insulation. [3+3+8]
2. a) What is the difference between Plaster of Paris and Gypsum anhydrite? Mention the use of two materials in construction.  
b) What are the different types of fibre glass?  
c) (i) What is meant by a composite material.  
(ii) Mention different types of composite materials.  
(iii) What are the components of flyash? Explain the different uses of flyash in building construction. [(2+2)+2+(2+2+1+3)]
3. a) What is the principle of load distribution in a shell structure?  
b) What are the advantages of shell structure?  
c) Draw sketches of different types of shell Barrel Vault structures.  
d) Draw neat a noted sketch of a formwork for North light shell structure. [2+3+5+4]
4. a) What is the principle of load distribution in a tensile structure?  
b) Explain with sketches the different types of tensile structure.  
c) What is the principle of Pneumatic structure?  
d) What are the advantages of Penumatic structure? [2+5+4+3]
5. a) What are the advantages of structural steel work over R.C.C. structures?  
b) What are the methods of connecting steel works?  
c) Explain with sketch the different types of rivet connections in steel works.  
d) Explain the sketch the types of interconnection in steel stanchions/columns. [3+2+6+3]

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**SECOND HALF**

**(Answer any TWO questions.)**

6. a) What are the differences between Expansion Joint, Isolation Joint and Sliding Joint in structures.  
b) Explain with sketch the different materials used in expansion joints.  
c) Explain with sketch the treatment of expansion joint in roofs.  
d) Explain with sketch the treatment of sliding joint in wall and roof slab. [3+6+3+2]
7. a) What is the difference between contraction and construction joint in construction?  
b) What is the differences between complete contraction Joint and Partial Contraction Joint? Explain with sketches.  
c) Explain with sketches the construction and formwork details in construction joints for a R.C.C. slab. [2+5+7]
8. a) What are the differences between excavation equipment and compaction equipment in construction?  
b) What is the difference in operation of Drag Line and Power Shovel for excavation? Explain with sketch.  
c) Explain with sketch the operation of a hoisting equipment in construction. [3+5+6]
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