

B.E. Seventh Semester (Civil Engineering) (C.B.S.)  
**Elective - I : Advanced Construction Materials**

P. Pages : 2

Time : Three Hours



**NKT/KS/17/7440**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Due credit will be given to neatness and adequate dimensions.
  9. Assume suitable data whenever necessary.
  10. Illustrate your answers whenever necessary with the help of neat sketches.
  11. Use of non programmable calculator is permitted.

1. a) Explain advantages & Disadvantages of lime mortar over cement mortar. **5**  
b) Difference between High strength concrete & normal strength concrete. **4**  
c) Explain wet process with flow chart. **4**  
**OR**
2. a) Write the various types of finishes & treatment. **5**  
b) What are the desirable properties of Mortar? **4**  
c) Explain the manufacturing process of cement. **4**
3. a) Write the advantages & disadvantages of steel & Iron. **5**  
b) Write notes on Aluminum and its product. **5**  
c) Explain light gauge structural steel. **4**  
**OR**
4. a) Write short notes on:  
ii) TMT. **6**  
iii) Tendon.  
b) List the draw-backs of use of metals in building construction. **5**  
c) Enlist the various types of steel fastenings. **3**
5. a) A wall of house in Jammu consist of 180 mm thick light weight concrete backed by insulation. The inside temp. At the surface of the wall is 30°C while that at the outside surface is 0°C. The thermal conductivities of the light weight concrete and the insulation are 1.25 and 0.030 j/(s.m) resp. If the exposed area of the wall is 42 sq.m. determine the thickness of insulation when the heat loss through the wall is to be restricted to.  
a) 5% **8**  
b) 10%

b) Explain briefly the principles of sound proofing or sound insulation building. 5

**OR**

6. a) A wall continuously heating house in Shrinagar consist of 30 mm thick plywood backed by insulation. The inside temp. At the surface of the wall is 25°C while that at the outside surface is 5°C. The thermal conductivities of the plywood and the insulation are 1.78 and 0.025 j/(s.m) resp. If the exposed area of the wall is 82 sq.m. determine the thickness of insulation when the heat loss through the wall is to be restricted to.  
a) 8.5% b) 15% 8

b) What is ceramic material? Draw a flow chart for the production of ceramic tiles from recycled glass. 5

7. a) Write notes on industrial waste material & disposable material. 7

b) What is the bituminous materials and agro waste materials. 7

**OR**

8. a) Write short notes on.  
i) Adhesives. ii) Admixtures. 8

b) Difference between Tar and Bitumen. 6

9. a) What are the different causes of failure of form-work. 7

b) Advantages and disadvantages of plywood and lumber. 6

**OR**

10. a) What is plywood? Why is odd number of laminates used in plywood.? Where are these commonly used? 7

b) Write design consideration of building form – work. 6

11. a) List the types of smart material and how is it classified based on the basic properties modified. 7

b) What is bio cement? Write in brief about photo mechanical. 6

**OR**

12. a) Describe briefly the basic requirements for a smart structure. 7

b) What is dielectric elastomer? Write in brief about self healing. 6

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