

# UNIT III DESIGN PRINCIPLES

**1. Explain briefly the disuniting of structures?**

In prefabrication many elements of prefabricated, are assembled or united or jointed to form a single structures. The problem in prefabrication is the transportation. To avoid this problem of transportation, the structure is disuniting or separated into smaller elements so that the transportation becomes very easy.

**2. Write the advantages of disuniting structures?**

- The number of joints is reduced
- Failure at joints is minimum
- This disuniting method is suitable for site prefabrication
- Transportation cost for many elements to the site is reduced.

**3. Write the disadvantages of disuniting of structures?**

The lifting or hoisting of the entire frame is more difficult.  
Transportation of the frame from the plant is difficult.  
Transport cost is high for the transport of entire frame.  
The stress distribution during lifting is a problem.

**4. How can we classify the prefabrication principles?**

- Homogeneous
- Composite

**5. Mention the design of cross section in prefabrication?**

T section, I section , U or V section.

**6. Explain joint deformation?**

Various structural elements are made in the plant or prefabricated when these elements in their site there may be joint deformation to take it workout deformation.

**7. Mention some important requirements of the joint flexibility?**

The construction of joint should be easy  
The joint should require little material  
Join should not consume more labour  
Less labour is to be required  
The cost should be minimum.

**8. How does the material used in construction affect the design of the element?**

The materials for the construction are classified as homogeneous and composite based on the number of different material used in prefabrication.

**9. Distinguish between rigid joint and hinged joint with reference to prefabricated construction?**

The rigid joints are of adequate strength in addition to bearing of tensile compressive and shear force and for resisting bending moment. The hinge joint is those which can transmit force passing through the hinge itself allow sudden motion and rotation.

**10. Write the system consisting of linear member disunity at joint?**

Disunity at joint gives the linear member this means a great advantages and facility from the view point of both manufacture and assembly. Using this system, auxillary scaffolding is not necessary and the hoisting process is as a rule very simple.

**11. Explain joint flexibility?**

A joint that holds two parts together so that one can swing relative to the other is called joint flexibility.

**12. Write the classification of homogeneous prefabrication?**

Hollow

Solid

Ribbed

**13. Write the classification of composite prefabrication?**

Cored

Solid

Ribbed

**14. List the disadvantages of precast construction?**

Very heavy members

Camber in beams and slabs

Very small margin for error

Connections may be difficult

Somewhat limited building design flexibility

**15. What are the materials used for concrete joints?**

Flexible board

Dowels

Sealants