TWO MARKS:

1. **What are the importances of joints in precast structures when compared to cast in situ structures?**

In cast in situ structures the joints are provided to relieve the stresses due to temperature and shrinkage and also to accommodate the construction sequence for placement of concrete. But in case of precast structures apart from the above reason we require joints to connect various elements of structures.

2. **What is the need for expansion joint in precast structures? (May/June 2012)**

Expansion joints are necessary in precast structures in order to allow for the expansion and cooling of various members due changing in temperature. In precast structures the shrinkage takes place before the assembling of members, therefore the spacing of expansion joints may be 1.5 to 2 times greater than in monolithic structures.

Expansion joints are usually formed at the joint of roofing members and main girders.

3. **What are connections? (May/June 2012)**

In precast members to overcome operational difficulties the member are disunited into smaller elements. Connections are used to get required structures by joining the separate smaller elements.

4. **What are the different types of connections?**

There are two types of connections

i. Wet connections (with mortar or in situ concrete)
ii. Dry connections (with welding and bolting)

5. **What are the points to be considered while designing the connections?**

i. Loading under working condition
ii. Stability of structures
iii. Load conditions during construction
iv. Effect of shrinkage, creep and temperature
v. Unequal settlements.

6. **What are the different connections made in prefabricated structures?**

i. Column to column connections
ii. Beam to beam connections
iii. Main beam to secondary beam connections.

7. What are the different types of joints? (Nov/Dec 2013)

i. Expansion joints
ii. Contraction joints
iii. Crack control joints
iv. Construction joints

8. What are the materials used for concrete joints?

i. Flexible board
ii. Dowels
iii. Sealants

9. Based on location within a building, how connections can be classified?

Based on location within a building connections are classified into vertical and horizontal joints.

Vertical joints connect the vertical faces of adjoining wall panels and primarily resist vertical seismic shear forces.

Horizontal joints connect the horizontal faces of the adjoining wall and floor panels and resist both gravity and seismic loads.

10. What are the functions or importance of joints? (May/June 2009)

Joints between internal and external wall panels shall be designed to resist the forces acting on them without excessive deformation and cracking. They shall also be able to accommodate the deviations in the dimensions of the wall panels during production and erections.

11. Define joint. (MAY/JUNE 2012)

- It is desirable for the structure should be load bearing as soon as possible, preferably, immediately after assembly.
- In additional demand is that, the joint should require only a little material and should not be labour observing (i.e) cost should be minimum.

12. What are the requirements of joints. (MAY/JUNE 2009, 2012)

- The forming and construction of joints requires greatly increased control.
- The design and construction of joints should normalise with the materials to be used.
- Joints must be designed and executed to ensure dimensional tolerance.
- A relative displacement of the joint member should be impossible.

13. Write the types/classification of joints: (MAY/JUNE 2013)

a) As per dimensional tolerance:

i. Butt joint
ii. Splayed joint
iii. Pin joint

b) As per functions:

i. Rigid joint
ii. Hinge like joint
iii. Shod joint

c) As depending on necessity of in-situ concreting:

i. Dry joint
ii. Wet joint

14. What is the significance of connections in precast constructions? (April/May 2011)

i. Loading under working condition
ii. Stability of structures
iii. Load conditions during construction
iv. Effect of shrinkage, creep and temperature
v. Unequal settlements.

15. What is meant by expansion joints? (May/June 2013)

Expansion joints allow expansion and contraction of a member without generating potentially damaging forces within the member itself or the surrounding structures.

16. State post tensioned connections. (Nov/Dec 2013)

Post tensioned connections can generally be joined for simpler than the usual reinforced concrete structures. In post tensioned structures the forming of joints does not cause difficulties. In this all the joints are course rigid and moment bearing.