

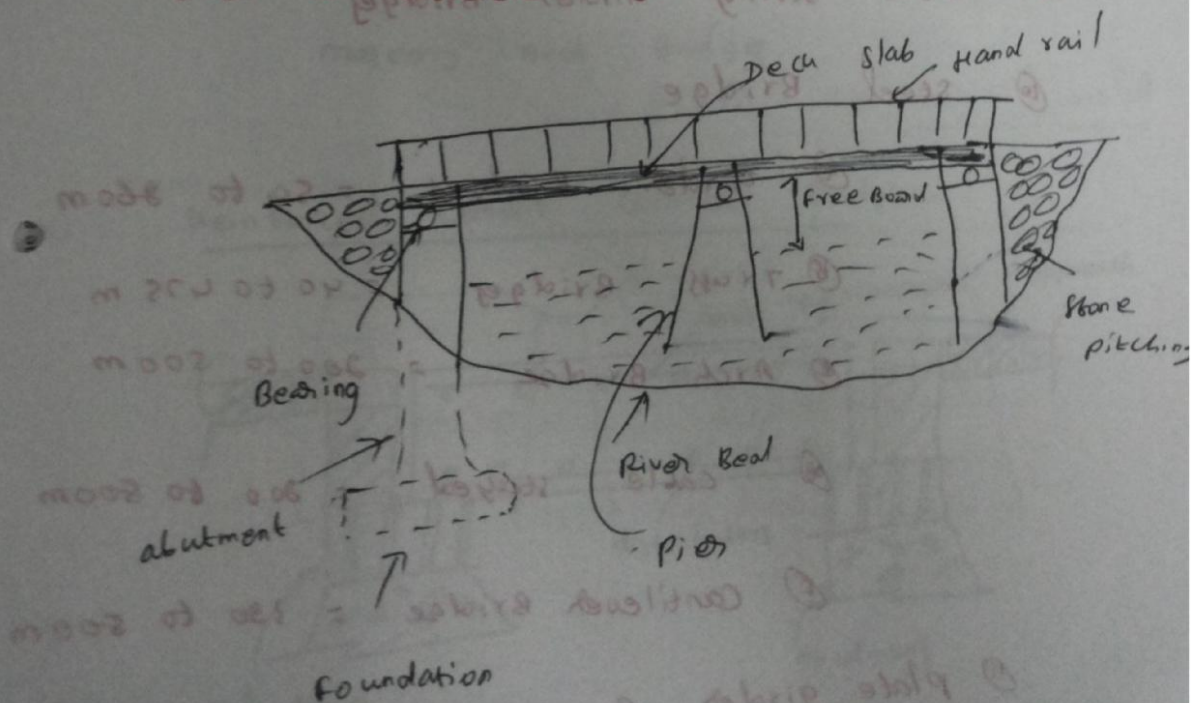
SUPER STRUCTURE CONSTRUCTION

Super structure :-

Structural members which are constructed above the ground which are used to fulfil certain facilities it is called as super structure.

Super structure of Bridge :-

A Bridge is a structure constructed to provide passage for a road or railway over an obstacle such as river, valley, pond etc.



Types of Bridge :-

① masonry Arch Bridge

② slab Bridge

③ T-beam Bridge

④ Hollow girder Bridge

⑤ Balanced cantilever Bridge

⑥ Continuous girder Bridge

⑦ rigid frame Bridge

⑧ Arch Bridge

⑨ Bow string girder Bridge

⑩ steel Bridge

⑪ girder Bridges = 50 to 260 m

⑫ Truss Bridges = 40 to 475 m

⑬ Arch Bridge = 200 to 500 m

⑭ cable stayed = 200 to 500 m

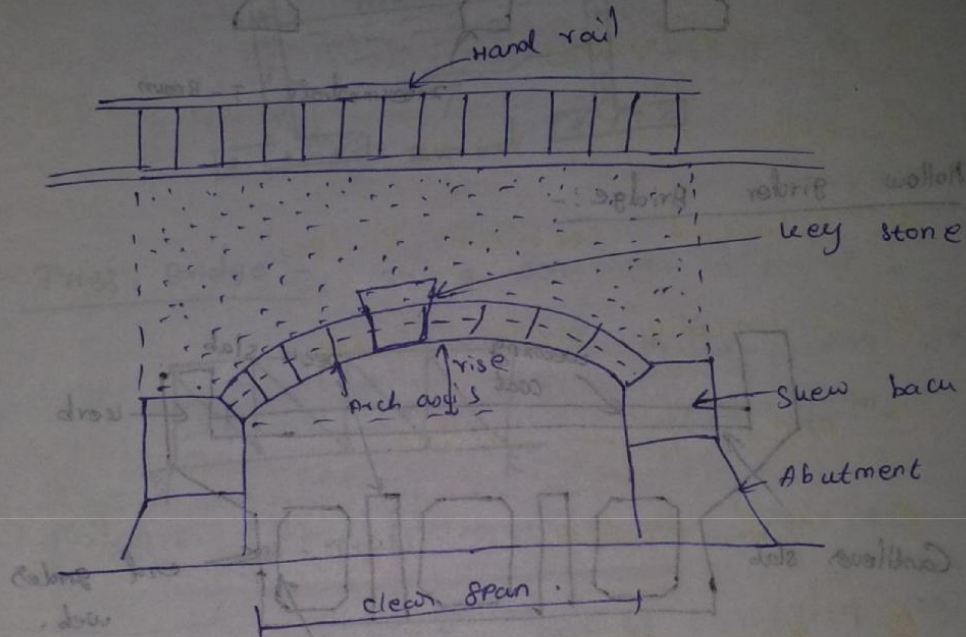
⑮ Cantilever Bridge = 300 to 500 m

⑯ plate girder Bridges

(14) Cable stayed Bridge

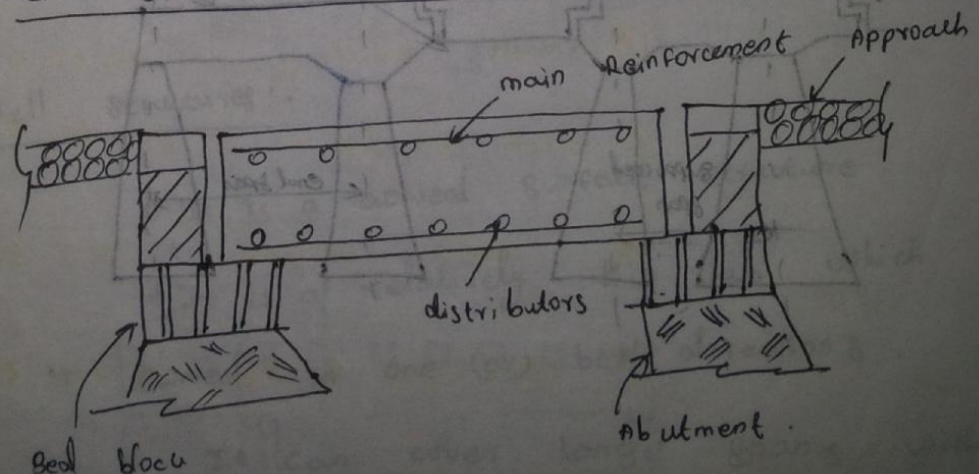
(15) Suspension Bridge

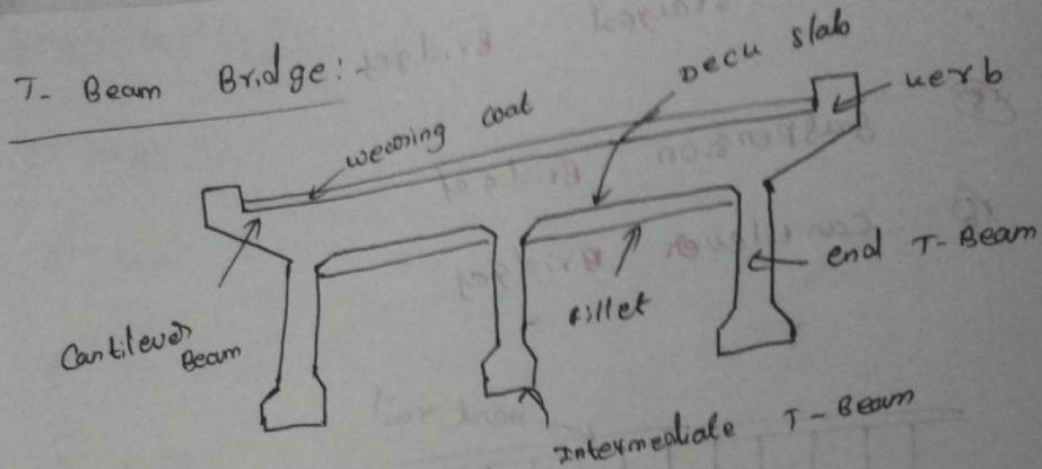
(16) Cantilever Bridge



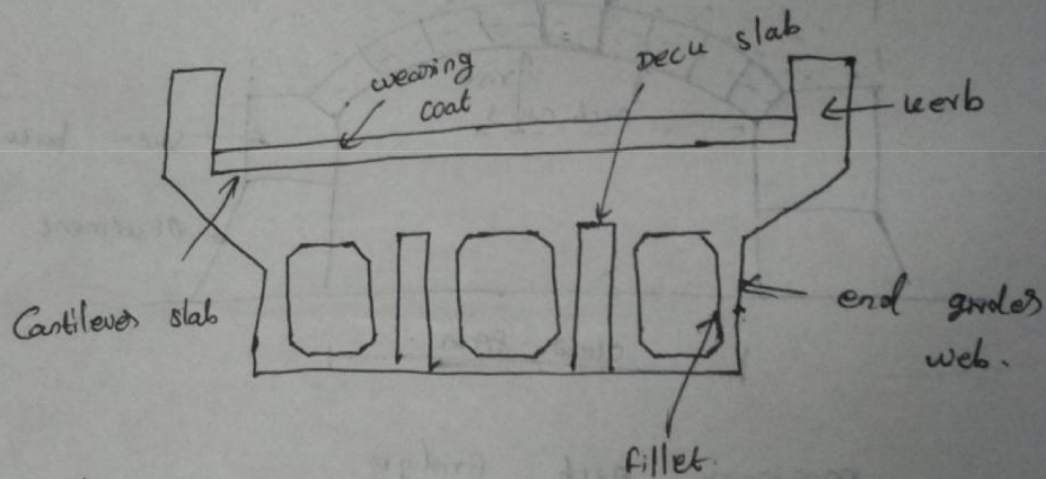
masonry Arch Bridge.

Reinforced Cement Concrete Bridge:-

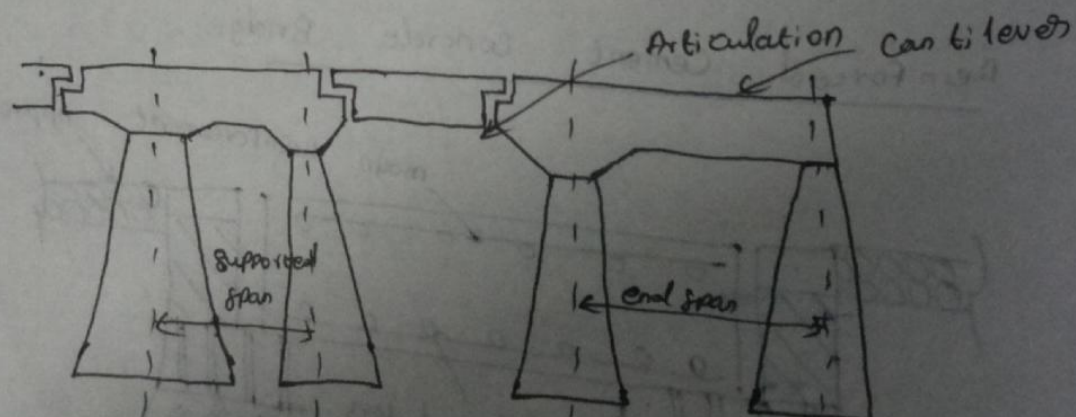


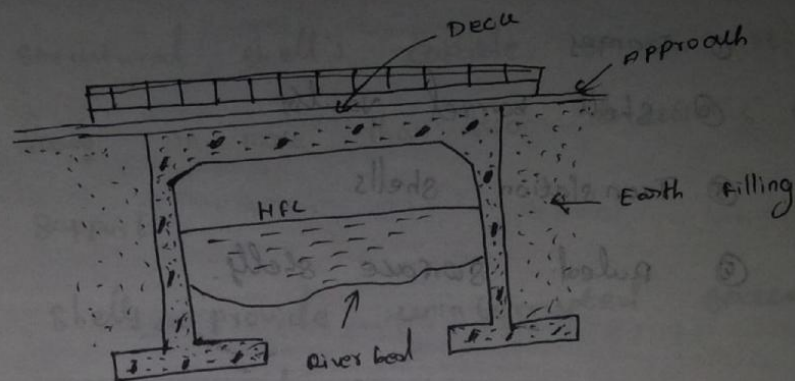
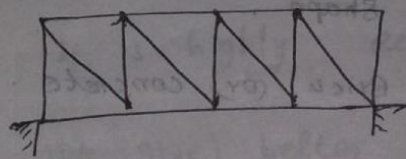


Hollow girder Bridge:-

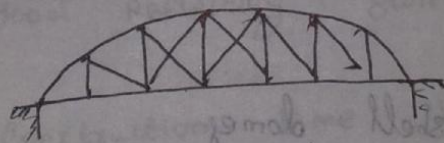


Balanced Cantilever Bridges:-



Rigid Frame Bridge:-Truss Bridge:-

Pratt Truss



Curved Chord Pratt Truss

Shell Structures:-

- * It is a curved surface structure.
- * It is a relatively thin slab which is curved in one (or) both directions.
- * It can cover large spans witho

interruption of columns shell roof

Type of shell structures:-

- ① Domes
- ② shell barrel vaults
- ③ Translation shells
- ④ ruled surface shells.

Domes:-

* It is a type of roof of semi spherical

(or) semi elliptical shape.
 * material used for stone, brick (or) concrete.

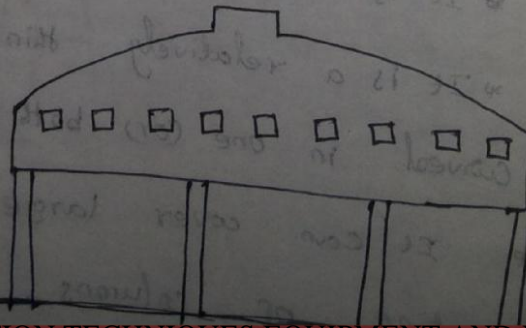
* They are supported on circular

(or) polygon shaped walls.

Types:-

① Smooth shell domes

② Ribbed domes.



① structural shell's capable of transmitting loads in more than two directions to support.

② shells provide uninterrupted space without columns.

③ It have less dead weight

④ It is highly economical

⑤ It give better ventilation

⑥ It give better appearance and provide good reflecting surfaces.

⑦ Construction time is very low compared to other type of construction.

Demerits of Shell Roofs:

① It can sustain only direct stresses and no bending is permissible.

② It can take only a negligible amount

- ③ Any damaged caused to the shell
Can not be repaired easily.
- ④ Colour washing the shell roof needs
special ladder (or) temporary scaffolding.

IN SITU PRESTRESSED CONCRETE:-

* It give more tensile stress against
the heavy load.

* This concrete is first sit compressive
stresses before the external loads are
applied.

* It inducing tensile stresses external
loads are counteracted.

method of prestressing:-

① pre tensioned method

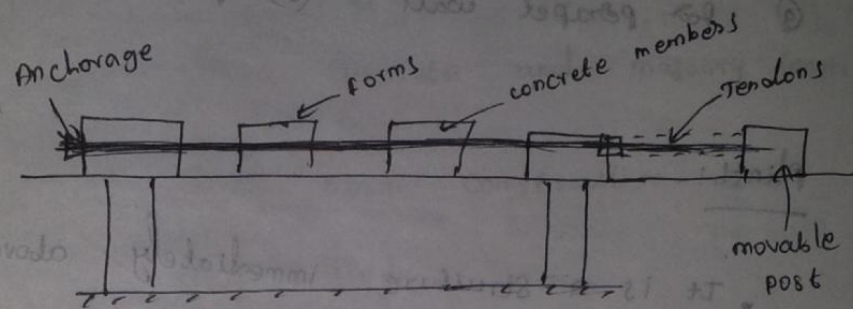
② post tensioned method.

pre tensioned method:-

* Steel wire (or) Tendons are stressed
before placing

Post tensioning method:-

Steel wire (or) Tendons are stressed after the hardening (or) after the placing of concrete.



prestressing bed.

Super structure of Building:-

The above the ground level or

Building structure is called as super structure

Components of super structure:-

① plinth

② walls and pillars

③ Basement

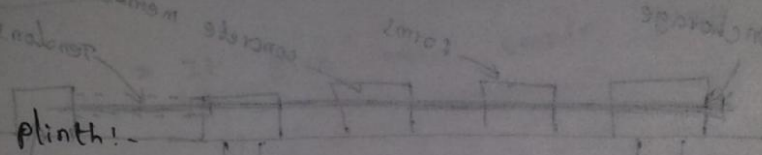
⑤ Door and window

⑥ Roofs

⑦ Steps and stairs

⑧ Finishes

⑨ Parapet wall (or) parapet wall



It is a structure immediately above the ground

Thickness of the plinth is based on the width of foundation and the number of floors.

wall:-

It function as load bearing structure

(or) as a space divider.

The main wall take the loads and partition walls separate the spaces.

Steps and stairs:-

It is a combination of a tread

It is used for move one floor to another floor.

Construction sequence of a Building

Excavation for foundation



Base concrete and masonry construction



Plinth beam construction and sand filling.



Floor concrete and super structure construction.



Preparation of doors and windows



Fixing doors and windows



Construction of lintels and sunshade



Brick work up to ceiling and roof capping



Fixing electrical points

concreting.

Remove form work and
plastering

↓
floor finishing

↓
painting and fixing fittings.

Tall structures:-

It is a multi storeyed building, R.C.C
Chimney, elevated water tank, cooling tower.

Tall Building:-

multi storeyed building is called as Tall

Building

* If prohibitive land cost in urban
areas and demand to meet large population
in urban areas.

* 5 to 11 stories.

Advantages of Tall Building:-

- ① Economy in use of less land for construction.
- ② Freedom from street noises

③ Provides a pleasant panoramic view of the city.

④ Enables better day lighting and greater flow of air.

Disadvantages of Tall Buildings:-

① Density of population is high in a small area.

② Prevention of congestion is difficult.

③ Prevention of accidents due to fire, earthquake disasters.

④ poses a number of social and human problems.

ARTICULATED STRUCTURE:-

Articulated structure means the separation of a structure into two or more elements and join the entire structural elements such that functions as a single monolithic structure.

Conveyers:-

It is a transportation device which function adopting the friction b/w the materials being transported and the base of the conveyer called the belt.

Type of Conveyers:-

- ① Belt Conveyers
- ② Roller Conveyers
- ③ Chain (or) Cable Conveyers
- ④ pipe line Conveyers
- ⑤ Screw Conveyers
- ⑥ Elevating Conveyers

Cofferdam:-

Deep excavation, River diversion work require some type of temporary (or) permanent retaining structure. It is called as cofferdam.

Types of Cofferdam :-

- ① Cantilever sheet piles
- ② Braced cofferdams
- ③ Earth Embankment
- ④ Double wall cofferdams
- ⑤ Cellular cofferdam.