UNIT-IV(SUPER STRUCTURE CONSTRUCTION)

1. What are launching girders?
For erection of large beams in buildings or bridges, temporary girders are used. Such girders are called launching girders. Launching girders are usually of steel as it would be light compared to concrete girders.

2. What are bridge decks?
In bridges, the structure supporting the carriageway is called decks. The bride deck transfers the load to the piers or abutments. The bride decks can be classified as slabs, T-beam and slab, or composite decks. In composite decks, beams are pre-stressed or of steel and the slabs would be concrete cast in situ.

3. What are offshore platforms?
Offshore platforms are structures constructed in the ocean to explore or to produce oil and gas from the sources found below the sea. Offshore platforms are in steel or in concrete.

4. What are Jacket platforms?
The steel offshore platforms are called Jacket platforms. They are vertical towers constructed with steel tubular members supporting the deck, where the machinery for drilling or processing oil or gas is located. They are connected to the ocean floor by means of piles.

5. What are gravity towers?
In concrete construction, the offshore platforms are called Gravity towers which consist of concrete circular shafts supporting the processing platforms. The offshore platforms are subjected to loads from ocean waves.

6. What is a bow-string bridge?
In this type of bridge, the horizontal thrust is resisted by the horizontal ties. The supports take up only the vertical reaction. They, therefore require thinner sections. Bow-string girdes of R.C.C are commonly adopted for arch bridges having span of 30m to 45m. At various points along the length of a tie beam, vertical posts or suspenders connecting the tie beam to the arched rib are provided. The flooring is resting on the tie beam and transfers its load to the arch through the suspenders. Thwe flooring may be of simple slab or beam and slab construction.

7. What are cable-stayed bridges?
These bridges provide a larger width for purposes of navigation by eliminating intermediate piers. They consist of cables provided above the deck and are connected to the towers. The deck in case of cable stayed bridges is either supported by a number of cables meeting in a bunch at the tower (fan form) or by joining at different levels on the tower (harp form).
8. What are chimneys?
Chimneys are structures used to escape the gases to such a height that the gases donot contaminate the surrounding atmosphere. The cross sectional area of the chimneyis kept large enough to allow the passage of burnt gases.

9. State the dimension of flue hole opening in chimney.

40 x 40 cm

10. What are the various loads acting on a chimney?

1. Self weight of masonry chimney
2. Weight of lining
3. Wind pressure
4. Seismic forces

11. How is lining made in chimney?

The mareial used for lining should be capable of withstanding high temperature upto 2000 F. The fire bicks are used for lining in brick masonry chimneys. The fire brick lining must be free to expand and contract independently of the main chimney. Yhe height of lining depends on the purpose of chimney.

12. What are the various types of chimneys? R.C.C chimney
Brick chimney
Self supporting stacks
Guyed steel stack

13. What are the forms used in the construction of chimney? Jump forms, Slip forms

14. What are cooling towers?

Cooling Towers are used to cool the water that is used to recondense the steam that is used to generate electricity.

15. What are the methods of prestressing?

1. Pre tensioned Metod
2. Post tensioned Method

16. What are the systems of prestressing?

1. Freyssinet System
2. Magnel-blaton System
3. Lee-Mc. Call or stress steel system

17. What are the advantages of prestressed cement concrete?

1. It is possible to take the full advantage of compressive strength of concrete and high tensile strength of the steel used.
2. 15 to 30% of the concrete is saved.
3. 60 to 80% of the steel is saved.
4. Presressed concrete members are thinner in section and hence there is greater reduction of the self weight of the member.

18. How are domes erected?

Domes are usually erected with a central temporary support on which the supporting ring rests. If the span is greater than 40 – 50m, the tower of an erecting frame serves a sthe support.

19. What are shells?
Shalls are three dimensional structures constructed as storage tanks or roof
for large column free areas, such as exhibition halls, sports complex or theatres.

20. How are shells classified ?
1. Singly curved shells like cylindrical shells
2. Doubly curved or spherical shells

PART-B

1) Explain the construction sequence of launching of bridge girders

2) Briefly explain the erecting procedure of light weight components on tall structures

3) Explain in detail the construction procedure of a bow string girder bridge

4) Explain insitu prestressing in high rise structures

5) Describe in detail about the erection of light weight components on tall structures

6) Explain the construction procedure for prestressing in high rise structures

7) Explain the construction sequence of sky scraper in detail?

8) Explain in detail the construction procedure of a bow string girder bridge

9) Explain the dewatering methods

10) Write short notes on domes & shells

SVCET