

VALLIAMMAI ENGINEERING COLLEGE

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CIVIL ENGINEERING

QUESTION BANK



IV SEMESTER

CE8401 - CONSTRUCTION TECHNIQUES & PRACTICES

**REGULATION 2017
ACADEMIC YEAR 2018-2019(EVEN)**

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(As per Anna University Syllabus)



SEMESTER: 04th

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UNIT I CONSTRUCTION TECHNIQUES

Structural systems - Load Bearing Structure - Framed Structure - Load transfer mechanism – floor system - Development of construction techniques - High rise Building Technology - Seismic effect - Environmental impact of materials – responsible sourcing - Eco Building (Green Building) - Material used - Construction methods - Natural Buildings - Passive buildings - Intelligent(Smart) buildings - Meaning - Building automation - Energy efficient buildings for various zones-Case studies of residential, office buildings and other buildings in each zones.

Q.No	QUESTIONS	BT	COMPETANCE
1	Define structural system.	BT-1	Remember
2	Distinguish load bearing structure & framed structure.	BT-1	Remember
3	Sketch the pattern of load transfer mechanism.	BT-1	Remember
4	Outline floor system.	BT-1	Remember
5	Demonstrate the development of construction techniques.	BT-1	Remember
6	Compare the features implemented on high rise building technology.	BT-1	Remember
7	What is seismic effect?	BT-2	Understand
8	Prioritize the environmental impact of construction materials.	BT-2	Understand
9	Summarize the features of Eco building.	BT-2	Understand
10	List out any four construction materials.	BT-2	Understand
11	Compose the characteristic features of construction materials.	BT-3	Apply
12	Give the limitations of natural buildings.	BT-3	Apply
13	Investigate intelligent buildings.	BT-3	Apply
14	Explain building automation.	BT-4	Analyze
15	What is an energy efficient building?	BT-4	Analyze
16	Outline the major sources to be considered to make the building energy efficient.	BT-4	Analyze
17	Demonstrate passive buildings.	BT-5	Evaluate
18	List out the recent smart materials used in building construction.	BT-5	Evaluate
19	Categorize the sources for greater environmental impact on construction materials.	BT-6	Create
20	List out the preventive measures that can be adopted for seismic effect.	BT-6	Create

PART –B

1	Explain structural system & its types in detail.	BT-1	Remember
2	Summarize the characteristic features of load bearing structures & framed structures.	BT-1	Remember
3	Give the stepwise procedure of load transfer mechanism, explain each in detail.	BT-1	Remember
4	i) Compose floor system (7) ii) List out the construction techniques (6)	BT-1	Remember
5	Illustrate the seismic effect on high rise building.	BT-2	Understand
6	Explain the procedure for determining the seismic force of a building.	BT-2	Understand
7	How do the quality of construction materials affect the construction process? Demonstrate.	BT-2	Understand
8	Eco building is an energy efficient building. – Justify	BT-3	Apply
9	i) Compare the materials to be used for green building (7) ii) List out the recycling methods adopted in an Eco building. (6)	BT-3	Apply
10	Explain the various construction methods in detail.	BT-4	Analyze
11	Distinguish residential & office buildings.	BT-4	Analyze
12	Distinguish natural buildings & passive buildings.	BT-4	Analyze
13	Summarize the major features of various zones in India.	BT-5	Evaluate
14	i) Compose the procedure of building automation. (7) ii) Requirement of skilled labour for building automation, Justify. (6)	BT-6	Create

PART – C

1	Framed structure perform better than load bearing structure, Justify.	BT-1	Remember
2	Distinguish normal building & Eco building.	BT-2	Understand
3	Compose the limitations of latest construction technique.	BT-5	Evaluate
4	Illustrate the characteristics of different buildings in different zones.	BT-6	Create

UNIT II CONSTRUCTION PRACTICES

Specifications, details and sequence of activities and construction co-ordination – Site Clearance – Marking – Earthwork - masonry – stone masonry – Bond in masonry - concrete hollow block masonry – flooring – damp proof courses – construction joints – movement and expansion joints – pre cast pavements – Building foundations – basements – temporary shed – centering and shuttering – slip forms – scaffoldings – de-shuttering forms – Fabrication and erection of steel trusses – frames – braced domes – laying brick — weather and water proof – roof finishes – acoustic and fire protection

PART-A

1	Define scaffolding.	BT-1	Remember
2	What is the necessity of providing construction joints?	BT-1	Remember
3	List the types of damp proofing courses?	BT-1	Remember

4	What is ashlar masonry?	BT-1	Remember
5	List the types of scaffolding?	BT-1	Remember
6	What are slipforms?	BT-1	Remember
7	Explain the term acoustics and fire resistance.	BT-2	Understand
8	Illustrate the common sizes of concrete hollow blocks used in buildings.	BT-2	Understand
9	Explain the steps involved in site clearance.	BT-2	Understand
10	Summarize about dampness.	BT-2	Understand
11	Draw a neat sketch for cornice and coping.	BT-3	Application
12	Identify any three materials used for joints.	BT-3	Application
13	Illustrate the classifications of stone masonry.	BT-3	Application
14	Differentiate English bond and Flemish bond.	BT-4	Analyze
15	Examine about centering.	BT-4	Analyze
16	Inspect water proofing in construction.	BT-4	Analyze
17	Support the purpose of providing DPC in buildings.	BT-5	Evaluate
18	Compare expansion joint and construction joint.	BT-5	Evaluate
19	Compose on braced domes.	BT-6	Create
20	Discuss about zig- zag bond.	BT-6	Create

PART-B

1	Define masonry. Briefly explain the types of stone masonry with neat sketch.	BT-1	Remember
2	Name the different types of bonds in brick masonry and explain with sketches.	BT-1	Remember
3	(i) What are the methods of providing DPC? (6) (ii) What are the requirements of an ideal material for Damp proofing? (7)	BT-1	Remember
4	List the fire protective requirement of the building.	BT-1	Remember
5	What is Scaffolding? Mention its various components. Name the different types scaffolding and explain any two with neat sketches. List the fire protective requirement of the building.	BT-2	Understand
6	(i) Explain about masonry structures? Demonstrate bonded wall. (7) (ii) Illustrate the function of roof? (6)	BT-2	Understand

7	Summarize the general principles and factors in acoustical design of a hall.	BT-2	Understand
8	(i) Plan the sequence of activities and the construction co- ordination. (7) (ii) Explain in brief about general common acoustic defects and suggest the remedial measures. (6)	BT-3	Apply
9	(i) Identify the various types of shuttering and explain why it is provided (8) (ii) Write a short note on roof finishes (5)	BT-3	Apply
10	Classify the types of flooring. Explain any 5 in detail.	BT-4	Analyze
11	(i) Distinguish scaffolding, shuttering and framework as per Civil Engineering. (7) (ii) Examine building foundations. (6)	BT-4	Analyze
12	Explain the formwork of staircase.	BT-4	Analyze
13	Explain precast pavements, basement and temporary shed.	BT-5	Evaluate
14	(i) Elaborate in detail the braced domes. (8) (ii) Write a short note erection of steel truss. (5)	BT-6	Create

Part- C

1	Examine the sequence of construction activities in detail	BT-2	Understand
2	Categorize the fabrication and erection of steel frames.	BT-4	Analyze
3	Assess the process of shuttering and de-shuttering forms.	BT-5	Evaluate
4	Summarize the construction methodology of RCC cooling tower using slipform techniques.	BT-1	Remember

UNIT III SUB STRUCTURE CONSTRUCTION

Techniques of Box jacking – Pipe Jacking -under water construction of diaphragm walls and basement-Tunneling techniques – Piling techniques - well and caisson - sinking cofferdam - cable anchoring and grouting - driving diaphragm walls, sheet piles - shoring for deep cutting - well points -Dewatering and stand by Plant equipment for underground open excavation.

PART A

1	What is shoring and state its components.	BT-1	Remember
2	Define the term water proofing in construction?	BT-1	Remember

3	List the functions of sheet piles.	BT-1	Remember
4	Tell about under reamed pile	BT-1	Remember
5	What is well foundation?	BT-1	Remember
6	Define grouting.	BT-1	Remember
7	Explain the essential features of a pump to be used for dewatering.	BT-2	Understand
8	Explain the methods used for tunnel driving?	BT-2	Understand
9	Illustrate about micro piling	BT-2	Understand
10	Classify various methods to dewater deep excavations?	BT-2	Understand
11	Show the advantages of drift method?	BT-3	Application
12	Identify the different types of cofferdams and explain what is cofferdam	BT-3	Application
13	Develop a schedule of operations involved open caisson method of foundation?	BT-3	Application
14	Distinguish between box jacking and pipe jacking.	BT-4	Analyze
15	List the situations under which pile foundation is recommended.	BT-4	Analyze
16	List out the various methods of tunneling in soft soil.	BT-4	Analyze
17	Prioritize the various methods of dewatering a basement excavation	BT-5	Evaluate
18	When will you use a caisson	BT-5	Evaluate
19	Build a flow chart for steps involved in underwater construction of diaphragm walls.	BT-6	Create
20	Elaborate about cable anchoring.	BT-6	Create

PART B

1	Describe the procedure involved in underwater construction of diaphragm walls and basement.	BT-1	Remember
2	What is a coffer dam? With the help of sketches explain the types of cofferdams.	BT-1	Remember
3	Explain tunneling and its techniques.	BT-1	Remember
4	Tell about pneumatic caisson? Where is it adopted? How is it constructed?	BT-1	Remember

5	Write a note on dewatering technique. Explain in detail about various dewatering methods.	BT-2	Understand
6	(i) What is jacking ? (ii) Explain them with neat sketch.	BT-2	Understand
7	Explain the construction sequence of a diaphragm wall	BT-2	Understand
8	Describe with neat sketch about the method of pile driving	BT-3	Application
9	(i) What are the problems in well sinking? (ii) Illustrate the types of shoring in detail	BT-3	Application
10	Criticize about (i) Grouting (4) (ii) Cable anchoring (3) (iii) Sinking Cofferdam (3) (iv) Shoring (3)	BT-4	Analyze
11	What is well pointing and how does dewatering work.	BT-4	Analyze
12	Explain with sketches about (i) Sheet piles. (7) (ii) Well points. (6)	BT-5	Evaluate
13	(i) Recommend the operation procedure for caissons. (7) (ii) Describe the various methods of underwater concreting operations system (6)	BT-6	Create
14	Explain the detailed description about various equipments used during driving well and caissons, sinking cofferdam and shoring for deep cutting.	BT-4	Analyze
PART C			
1	What do you mean by shoring? Describe in brief various types of shores	BT-5	Evaluate
2	Explain construction of sheet pile wall	BT-2	Understand
3	Develop a procedure for construction of well foundation for a bridge to be constructed across a river	BT-6	Create
4	Explain the construction of underground train tunnel using train boring machine	BT-3	Application

UNIT IV SUPER STRUCTURE CONSTRUCTION

Launching girders, bridge decks, off shore platforms – special forms for shells - techniques for heavy decks – in-situ prestressing in high rise structures, Material handling - erecting light weight components on tall structures - Support structure for heavy Equipment and conveyors - Erection of articulated structures, braced domes and space decks.

PART –A

1	What are conveyors and why they are used in material handling?	BT-1	Remember
2	Define the term support structure	BT-1	Remember
3	What are erection stresses?	BT-1	Remember
4	What is prestressed concrete?	BT-1	Remember
5	Define articulated structures.	BT-1	Remember
6	Tell about transmission tower?	BT-1	Remember
7	Summarize are the advantages of articulated structures	BT-2	Understand
8	Explain uses of silos.	BT-2	Understand
9	Illustrate the major techniques adopted for heavy decks?	BT-2	Understand
10	Summarize the precautions to be taken while erecting light weight components on tall structures?	BT-2	Understand
11	Draw a sketch of formwork for shells.	BT-3	Apply
12	Illustrate the procedure for launching girders?	BT-3	Apply
13	Classify types of offshore platforms?	BT-3	Apply
14	List out the reasons for using special forms for shells.	BT-4	Analyze
15	What do you mean by bridge write their types	BT-4	Analyze
16	Examine the term skyscrapers.	BT-4	Analyze
17	Write the various operations involved in the construction of offshore platform	BT-5	Evaluate
18	Evaluate the reasons for using special forms of shells.	BT-5	Evaluate
19	Discuss about Shells and braced domes.	BT-6	Create
20	Compile the methods of prestressing	BT-6	Create

PART –B

1	Explain the construction techniques for bridge decks with flowchart.	BT-1	Remember
2	With flow diagram explain the erection of articulated towers.	BT-1	Remember

3	i) What are the advantages of using belt conveyors for transporting materials? (6) ii) Describe the construction of a typical belt conveyor installation.(7)	BT-1	Remember
4	Briefly explain General requirements for launching girders	BT-1	Remember
5	Explain in detail about special forms of shells	BT-2	Understand
6	i) Write short notes on Bow-string Bridge and cable-stayed bridge? (6) ii) Explain Roof Shell Structure (7)	BT-2	Understand
7	Describe the procedure involved in the erection of braced domes and space decks.	BT-2	Understand
8	Explain about various types of domes with neat sketch.	BT-3	Apply
9	Demonstrate the procedure for erecting light weight structures on tall buildings	BT-3	Apply
10	Compare the merits and demerits of various types of shells.	BT-4	Analyze
11	Explain in detail about i) Articulated structures (4) ii) Braced domes (5) iii) Space decks (4)	BT-4	Analyze
12	Explain about the support structures required for heavy equipments and conveyors	BT-4	Analyze
13	(i) Evaluate and explain Skyscrapers and Transmission towers. (7) (ii) Tell in detail about material handling. (6)	BT-5	Evaluate
14	Write short notes on i) Cooling Tower (4) ii) Bridge decks (4) iii) Offshore platforms (5)	BT-6	Create

PART - C

1	(i) How are domes erected? (5) (ii) What are the advantages of prestressed cement concrete? (5) (iii) How is lining made in chimney? (5)	BT-1	Remember
2	Explain the procedure of Prestressing in detail also explain in-situ prestressing in high rise building?	BT-2	Understand
3	Explain the construction sequence of sky scraper in detail.	BT-5	Evaluate
4	Discuss in detail about the various types of bridge decks with suitable diagram.	BT-6	Create

UNIT V CONSTRUCTION EQUIPMENT

Selection of equipment for earth work - earth moving operations - types of earthwork equipment - tractors, motor graders, scrapers, front end loaders, earth movers – Equipment for foundation and pile driving. Equipment for compaction, batching, mixing and concreting - Equipment for material handling and erection of structures – types of cranes - Equipment for dredging, trenching, tunneling,

1	Define scrapers and explain how to calculate the output of scraper.	BT-1	Remember
2	Tabulate the factors affecting the selection of equipments?	BT-1	Remember
3	List out various types of vibrators used in compaction process	BT-1	Remember
4	Define dredging.	BT-1	Remember
5	List the equipments needed for compacting concrete.	BT-1	Remember
6	What is TBM? When it is used?	BT-1	Remember
7	Summarize the types of earthwork equipment.	BT-2	Understand
8	Explain the operations performed by motor grader?	BT-2	Understand
9	Summarize the need of equipment management in site?	BT-2	Understand
10	Describe the various types of conveyors?	BT-2	Understand
11	Classify the different methods of tunneling.	BT-3	Apply
12	Demonstrate the operations performed by motor grader?	BT-3	Apply
13	Illustrate about truck agitators.	BT-3	Apply
14	Explain the various operations involved in Graders?	BT-4	Analyze
15	Point out factors influencing compaction?	BT-4	Analyze
16	Differentiate between single acting and double acting hammer.	BT-4	Analyze
17	Name the equipments used for earth moving operations	BT-5	Evaluate
18	Design the sequence of operations involved in driving the tunnel through rock?	BT-5	Evaluate
19	Write about pile driving equipment.	BT-6	Create
20	List any two reasons for dredging	BT-6	Create

PART –B

1	List out the different methods of dredging technique and explain with neat sketches.	BT-1	Remember
2	Explain the various equipments for pile driving.	BT-1	Remember
3	What are the various operations involved in road construction?	BT-1	Remember

4	Examine various types of earthwork equipment. Describe in detail about any two earthwork equipment and mention their uses.	BT-1	Remember
5	i) Discuss the role of tractors in earth moving. (7) ii) What considerations govern selection of wheel type or crawler type tractor on a job? (6)	BT-2	Understand
6	i) With sketch explain a typical batching plant. (6) ii) Discuss the advantages of Elevating Scraper. (7)	BT-2	Understand
7	Explain the various operations involved in multipurpose excavators with neat sketch.	BT-2	Understand
8	i) Distinguish between crawler & pneumatic type of wheels excavators.(6) ii) List out the equipments used for concreting work.(7)	BT-3	Apply
9	Illustrate the various factors involved in selection of equipment for earthwork.	BT-3	Apply
10	Compare the different types of cranes? Explain the types in detail.	BT-4	Analyze
11	Briefly explain about types of Dredger mention below with neat sketch. i) Dipper Dredger (4) ii) Bucket Dredger (5) iii) Wheel Dredger (4)	BT-4	Analyze
12	Analyze the equipment used for erection of structures in detail.	BT-4	Analyze
13	Evaluate in detail about rippers and scrapers.	BT-5	Evaluate
14	(i) Write in detail about Material handling equipments. (6) (ii) Write detailed notes on selection of Material handling equipments.(7)	BT-6	Create

PART – C

1	i) What do you mean by dredging? List out the types of equipment used for dredging. ii) Explain in detail about trenching and the equipment used for trenching	BT-1	Remember
2	Illustrate about the support structures for light equipments.	BT-2	Understand
3	Classify the Types of earthwork equipments? Mention its uses	BT-4	Analyze
4	Explain in detail the various equipments used for compaction, batching and mixing of concrete	BT-5	Evaluate