SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CIVIL ENGINEERING

QUESTION BANK

IV SEMESTER

1903404 - CONSTRUCTION TECHNIQUES AND PRACTICES

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Prepared by

Dr. S. SURESH BABU, ASSISTANT PROFESSOR (S.G)/CIVIL ENGINEERING

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SUBJECT CODE/NAME: 1903404-CONSTRUCTION TECHNIQUES AND PRACTICES
SEM/YEAR: IV/II

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.

PART A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1.	What are the types of buildings based on the Structural System	BT-1	Remember
2.	Define structural system	BT-1	Remember
3.	Distinguish load bearing structure & framed structure.	BT-1	Remember
4.	Sketch the pattern of load transfer mechanism	BT-1	Remember
5.	Outline floor system	BT-1	Remember
6.	Demonstrate the development of construction techniques.	BT-1	Remember
7.	Compare the features implemented on high rise building technology.	BT-1	Remember
8.	What is seismic effect?	BT-2	Understand
9.	Prioritize the environmental impact of construction materials.	BT-2	Understand
10.	Summarize the features of Eco building.	BT-2	Understand
11.	List out any four construction materials used for constructing an eco-building.	BT-2	Understand
12.	Compose the characteristic features of construction materials.	BT-3	Apply
13.	Give the limitations of natural buildings.	BT-3	Apply
14.	Investigate intelligent buildings.	BT-3	Apply
15.	Explain building automation.	BT-4	Analyze
16.	What is an energy efficient building?	BT-4	Analyze
17.	Outline the major sources to be considered to make the building energy efficient.	BT-4	Analyze
18.	Demonstrate about passive buildings.	BT-5	Evaluate
19.	List out the recent smart materials used in building construction.	BT-5	Evaluate
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.	List the features of High Rise Building technology.	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.	Explain in detail about Limitation, benefits and requirements of Intelligent buildings?	BT-2	Understand
8.	"Eco building is an energy efficient building". – Justify	BT-3	Apply
9.	Explain about (i) Comparison of the materials to be used for green building (7) (ii) 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 between the residential & office buildings.	BT-4	Analyze
12.	i) Differentiate between natural buildings & passive buildings.(7) ii) What is meant by Floor system? (6)	BT-4	Analyze
13.	Summarize the major features of various zones in India.	BT-5	Evaluate
14.	Explain about Building Automation Systems.	BT-6	Create
	PART C		
1.	"Framed structure performs better than load bearing structure", Justify.	BT-1	Remember
2.	Distinguish between normal building & Eco building,	BT-2	Understand
3.	Compose the limitations of latest Construction Techniques.	BT-5	Evaluate
4.	Elaborate the role of materials and methods to achieve green building concepts.	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

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1.	Define Specifications.	BT-1	Remember
2.	Define Scaffolding?	BT-1	Remember
3.	List the types of Masonry?	BT-1	Remember
4.	What is Ashlar masonry?	BT-1	Remember
5.	What are the advantages of using English bond?	BT-1	Remember
6.	What are slip forms?	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 with Flemish bond.	BT-4	Analyze
15.	Examine about centering and shuttering.	BT-4	Analyze
16.	Define and list out the different types of scaffolding.	BT-4	Analyze
17.	List the importance 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 functions of foundations?	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 neat sketches.	BT-1	Remember
3.	Explain about the general principles to be observed while laying DPC. And also write about the materials used for DPC and their properties.	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.	BT-2	Understand
6.	Explain about masonry structures. Demonstrate bonded wall.	BT-2	Understand
7.	Summarize the general principles and factors in acoustical design of a hall. And also explain about general common acoustic defects and suggest the remedial measures.	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.	Write a short note on (i) Various types of shuttering. (8) (ii) Roof finishes. (5)	BT-3	Apply
10.	Classify the types of flooring, Explain any 5 in detail with sketches.	BT-4	Analyze
11.	(i) Briefly explain with neat sketches about sequence of construction activities (7) (ii) Write Short notes English bond and Flemish bond (6)	BT-4	Analyze
12.	Explain with neat sketch about the formwork of staircase.	BT-4	Analyze
13.	Explain precast pavements, basement and temporary shed.	BT-5	Evaluate
14.	Elaborate in detail about the braced domes.	BT-6	Create

PART- C			
1.	Examine Building Foundation 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 slip form techniques.	BT-1	Remember

UNIT III SUBSTRUCTURE 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			
Q NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
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.	Write 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.	What are the uses of sheet piles?	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.	Define Tunneling,	BT-3	Application
14.	List out the advantages of box jacking and pipe jacking,	BT-4	Analyze
15.	List any four types of Piling Techniques?	BT-4	Analyze
16.	List out the various methods of tunneling in soft soil.	BT-4	Analyze
17.	Mention the techniques used for underwater construction.	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 tunnel construction and its techniques.	BT-1	Remember
4.	Write about pneumatic caisson. Where is it adopted? How is it	BT-1	Remember

	constructed?		
5.	Write a note on dewatering technique. Explain in detail about various dewatering methods.	BT-2	Understand
6.	Describe the various operations of pipe or box jacking under water construction of a bridge.	BT-2	Understand
7.	Describe the various methods adopted to construct a diaphragm wall.	BT-2	Understand
8.	Describe with neat sketch about the method of pile driving,	BT-3	Application
9.	Explain in detail about the problems in well sinking,	BT-3	Application
10.	Elaborate 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.	Describe the various methods of underwater concreting operations system	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 tunnel boring machine.	BT-3	Application

UNIT IV SUPERSTRUCTURE CONSTRUCTION

Launching girders, bridge decks, off shore platforms – special forms for shells - techniques for heavy decks – in-situ pre-stressing 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

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
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.	Explain the term launching Girders.	BT-1	Remember
4.	What is prestressed concrete?	BT-1	Remember
5.	Define articulated structures.	BT-1	Remember

6.	Write about transmission tower.	BT-1	Remember
7.	Summarize 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.	In which situations articulated structures can be adopted?	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 Cable stayed bridge?	BT-4	Analyze
16.	Explain 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.	Describe the construction of a typical belt conveyor installation What are the advantages of using belt conveyors for transporting materials?	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.	Write short notes on (i) Bow-string Bridge and cable-stayed bridge. (6) (ii) 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.	What is a sheet pile? List the factors for selection of sheet piles. Explain its types based on materials.	BT-4	Analyze
12.	Explain about the support structures required for heavy equipments and conveyors.	BT-4	Analyze
13.	Explain about (i) Skyscrapers and Transmission towers. (7) (ii) Material handling, (6)	BT-5	Evaluate
14.	Write short notes on (i) Cooling Tower (4) (ii) Bridge decks (4)	BT-6	Create

	(iii) Offshore platforms (5)		
PART C			
1.	(i) What are the advantages of prestressed cement concrete? (8) (ii) How is lining made in chimney? (7)	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 bridge decks and offshore platform 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 waders, 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,

PART – A

Q.NO	QUESTIONS	BT LEVEL	COMPETENCE
1.	Define scrapers and explain how to calculate the output of scraper.	BT-1	Remember
2.	Write the factors which influence 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.	Name the equipment used for volume batching in concrete production.	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 a neat sketch explain the 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 wheel 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.	What are the different types of cranes? Explain any three 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.	Explain the various aspects of graders and scrapers in detail.	BT-5	Evaluate
14.	Explain in detail about trenching and the equipment used for trenching	BT-6	Create
	PART – C		
1.	What do you mean by dredging? List out the types of equipment used for dredging,	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