VALLIAMMAI ENGINEERING COLLEGE

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CIVIL ENGINEERING

QUESTION BANK

V SEMESTER

CE 6506 CONSTRUCTION TECHNIQUES, EQUIPMENTS AND PRACTICES

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UNIT 1 CONCRETE TECHNOLOGY

Cements – Grade of cements - concrete chemicals and Applications – Grade of concrete - manufacturing of concrete – Batching – mixing – transporting – placing – compaction of concrete – curing and finishing - Testing of fresh and hardened concrete – quality of concrete – Extreme Weather Concreting - Ready Mix Concrete - Non-destructive testing.

	PART A		
1	List the various concrete chemicals used for air entraining.	BT-1	Remember
2	What are the chemicals that are used as retarders in concrete?	BT-1	Remember
3	Tell about the tests available for fresh concrete as per Indian Code of Standards.	BT-1	Remember
4	What does the grade of cement?	BT-1	Remember
5	Name the methods of compacting concrete	BT-1	Remember
6	Define hydration of cement.	BT-1	Remember
7	Explain about non destructive testing. List out the various methods.	BT-2	Understand
8	Summarize the requirement of supervision needed while concreting.	BT-2	Understand
9	Classify the equipments needed for transporting the concrete.	BT-2	Understand
10	Summarize the methods for batching	BT-2	Understand
11	Write the grades of cement	BT-3	Application
12	Sketch the uses of Rapid Hardening cement.	BT-3	Application
13	Identify the ASTM classification of cement.	BT-3	Application
14	Analyze the various processes involved in the manufacture of concrete.	BT-4	Analyze
15	In which baries grade of cement is classified and write the grades of cement.	BT-4	Analyze
16	Examine about the ready mix concrete.	BT-4	Analyze
17	Explain the hot weather concreting.	BT-5	Evaluate
18	Conclude the need for Curing in concrete.	BT-5	Evaluate
19	Discuss about stem curing.	BT-6	Create
20	Formulate the need of Extreme Weather Concreting	BT-6	Create
	PART B		
1	(i) Define Non destructive Testing (3) (ii) List the Non destructive method and describe any two methods in detail (10)	BT-1	Remember
2	(i) Describe the method of conducting split tensile strength of concrete. (8) (ii) What are the factors affecting the workability of concrete? (5)	BT-1	Remember
3	What is RMC? List the various steps involved in the manufacture of concrete	BT-1	Remember
4	List out the factors affecting evaporation of water from concrete and explain	BT-1	Remember
5	Summarize concrete chemicals? Explain in detail and discuss their uses.	BT-2	Understand
6	Briefly explain various types of cements, grades and their characteristics.	BT-2	Understand
7	Demonstrate in detail about the types of finishing	BT-2	Understand
8	Illustrate and explain briefly about extreme weather concreting.	BT-3	Application
9	Explain in detail the different types of curing of concrete.	BT-3	Application
10	Explain about the following (i) Transporting (4) (ii) Placing (3)	BT-4	Analyze

	(iii) Compaction of concrete (3) (iv) Finishing (3)		
11	Compare the different methods adopted to transport concrete and explain each detail	BT-4	Analyze
12	Explain in detail about (i) Rebound hammer test (5) (ii) Pull out test (4) (iii) Pulse velocity test (4)	BT-4	Analyze
13	Evaluate in detail about (i) Slump test (4) (ii) Flow table test (3) (iii) Kelly ball test (3) (iv) Vee bee consistometer test (3)	BT-5	Evaluate
14	Discuss about admixtures and explain any three.	BT-6	Create
PART C			
1	Briefly discuss about the manufacturing of concrete	BT-1	Remember
2	Explain briefly about hardened concrete	BT-2	Understand
3	Identify the quality of concrete	BT-3	Application
4	A multi storey mall is to be constructed for which concrete is needed in large quantity which will be cost effective method in terms of concrete, justify your answer	BT-4	Analyze

UNIT 2 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	Recall what is 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 the list of 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	Analyze the uses of water proofing compounds.	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	Predict the conditions for good acoustics of an auditorium	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 the different types of joints in buildings with sketches. (7) (ii) What are the factors to be considered to achieve good quality bond in a masonry work? Discuss (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	Application
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	Application
10	Classify the types of flooring. Explain any 5 in detail.	BT-4	Analyze
11	(i) Make a comparison between stone masonry and brick masonry (7) (ii) Analyze the various types of foundation with neat sketches (6)	BT-4	Analyze
12	(i) Explain in detail about Slipform Technique (8) (ii) Identify what is centering. Explain how the centering is provided for slab sand columns. (5)	BT-4	Analyze
13	Explain the step by step procedure for laying of brick	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-4	Analyze
2	How will you explain about stone, brick and concrete hollow block masonry?	BT-1	Remember
3	Identify the construction of a steel grillage foundation	BT-3	Application
4	Summarize the construction methodology of RCC cooling tower using slipform techniques	BT-2	Understand

UNIT – 3 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 a cofferdam? When is it used?	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	List the techniques adopted for tunneling?	BT-1	Remember
5	What is well foundation?	BT-1	Remember
6	Define grouting.	BT-1	Remember
7	Summarize the term shoring for deep cutting.	BT-2	Understand
8	Explain the methods used for tunnel driving?	BT-2	Understand
9	Summarize about 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.	BT-3	Application
13	Illustrate the operations involved in 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 uses of caissons?	BT-4	Analyze
17	Assess the essential features of a pump to be used for dewatering.	BT-5	Evaluate
18	When will you consider cement grouting .	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	(i)Discuss in detail the underwater construction sequences. (ii) Explain the use of different materials as sheet pile?	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	Compare Cofferdam and Caisson? Explain the methods of sinking cofferdams with neat sketches.	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) Choose the any two methods of tunneling in detail. (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	What is well pointing and how dose dewatering work.	BT-4	Analyze
3	Describe the various methods employed to bring a tilted well to position while constructing a well foundations	BT-6	Create
4	Describe the various methods of underwater concreting operations system	BT-3	Application

UNIT – 4 SUPER STRUCTURE 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		
1	What is prestressed concrete and methods of prestressing	BT-1	Remember
2	Define articulated structures.	BT-1	Remember

3	Tell about transmission tower?	BT-1	Remember
4	What are erection stresses?	BT-1	Remember
5	Define the term support structure	BT-1	Remember
6	What is conveyor belt	BT-1	Remember
7	Summarize the precautions to be taken while erecting light weight components on tall structures?	BT-2	Understand
8	Explain uses of silos	BT-2	Understand
9	Summarize the major techniques adopted for heavy decks?	BT-2	Understand
10	Outline the advantages of prestressed cement concrete?	BT-2	Understand
11	Identify the situations where articulated structures are employed?	BT-3	Application
12	Organize the various types of offshore platforms?	BT-3	Application
13	Illustrate the procedure for launching girders?	BT-3	Application
14	Distinguish between space decks and bridge decks.	BT-4	Analyze
15	List the special forms of shell	BT-4	Analyze
16	Examine the term skyscrapers.	BT-4	Analyze
17	Explain the various operations involved in the construction of off shore platforms	BT-5	Evaluate
18	Evaluate the reasons for using special forms of shells	BT-5	Evaluate
19	Discuss about braced domes.	BT-6	Create
20	Write the classification of bridges	BT-6	Create
	PART B		
1	Tell the construction belt conveyor installation and advantages of using belt conveyors for transporting materials	BT-1	Remember
2	What are the (i) General requirements for launching girders (7) (ii) Roof Shell Structure (6)	BT-1	Remember
3	List the various procedure used for construction of heavy decks	BT-1	Remember
4	Tell in detail about the prestressed concrete used in the structure	BT-1	Remember
5	Summarize and explain the process of insitu prestressing in high rise structures	BT-2	Understand
6	Explain in detail about special forms of shells.	BT-2	Understand
7	Explain the procedure involved in the erection of braced domes and space decks	BT-2	Understand
8	Identify various types of bridges? Explain with neat sketch.	BT-3	Application
9	Plan the procedure for erecting light weight structures on tall buildings	BT-3	Application
10	Compare the merits and demerits of various types of shells.	BT-4	Analyze
11	Examine the support structures required for heavy equipments and conveyors	BT-4	Analyze
12	(i) Analyze and explain Skyscrapers and Transmission towers. (6) (ii) Examine the method of Erection of articulated structures (7)	BT-4	Analyze

13	Explain in detail about (i) Cooling Tower (4) (ii) Bridge Decks (5) (iii) Offshore platforms (4)	BT-5	Evaluate
14	Write in detail about (i) Articulated structures (4) (ii) Braced domes (5) (iii) Space decks (4)	BT-6	Create

PART C

1	Examine the construction techniques for bridge decks	BT-4	Analyze
2	Tell in detail about shell roof structures	BT-1	Remember
3	Explain the construction sequence of sky scraper in detail.	BT-2	Understand
4	Write about the various types of domes with neat sketch	BT-6	Create

UNIT – 5 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 and mixing and concreting - Equipment for material handling and erection of structures - Equipment for dredging, trenching, tunneling

PART A

1	List the equipments used for earthwork	BT-1	Remember
2	List out various types of vibrators used in compaction process.	BT-1	Remember
3	Define dredging.	BT-1	Remember
4	What are the factors affecting the selection of equipments?	BT-1	Remember
5	Define scrapers.	BT-1	Remember
6	What are the equipments needed for tunneling and trenching.	BT-1	Remember
7	Summarize the need of equipment management in site?	BT-2	Understand
8	Illustrate the operations performed by motor grader?	BT-2	Understand
9	Classify the various types of conveyors?	BT-2	Understand
10	Summarize the types of earthwork equipment	BT-2	Understand
11	Identify two reasons for dredging	BT-3	Application
12	Write about truck agitators.	BT-3	Application
13	Mention the different methods of tunneling	BT-3	Application
14	Differentiate between single acting and double acting hammer	BT-4	Analyze
15	List out the factors influencing compaction?	BT-4	Analyze
16	List the various operations involved in grading?	BT-4	Analyze
17	Explain the terms earth movers.	BT-5	Evaluate
18	Justify the sequence of operations involved in driving the tunnel through rock	BT-5	Evaluate
19	Elaborate about pile driving equipment	BT-6	Create
20	Discuss the parts of a scraper	BT-6	Create

PART B			
1	List in detail about various types of earth moving equipments	BT-1	Remember
2	(i) What are the material handling equipment explain in detail (4) (ii) List the advantage of elevating scraper (4) (iii) Write about crawler and pneumatic type of wheels excavators (5)	BT-1	Remember
3	Write in detail about the pile driving equipments.	BT-1	Remember
4	List out the different methods of dredging technique and explain with neat sketches.	BT-1	Remember
5	Explain in detail the various equipments used for compaction, batching and mixing of concrete	BT-2	Understand
6	Illustrate the types of Dredger with neat sketch (i) Dipper Dredger (4) (ii) Bucket Dredger (4) (iii) Wheel Dredger (5)	BT-2	Understand
7	Explain the various operations involved in multipurpose excavators with neat sketch	BT-2	Understand
8	Plan a typical batching plant with neat sketch	BT-3	Application
9	Identify the various types of compaction equipments with respect to their uses	BT-3	Application
10	Examine in detail about (i) Motor Graders (4) (ii) Trenching Equipments (5) (iii) Tunneling Equipment (4)	BT-4	Analyze
11	Compare the different types of cranes? Explain the types in detail	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	Elaborate in detail on selection of Material handling equipments	BT-6	Create
PART C			
1	(i) What do you mean by dredging? List out the types of equipment used for dredging (5) (ii) Tell in detail about trenching and equipment used for trenching (10)	BT-1	Remember
2	Examine the various equipments for pile driving and explain in detail	BT-4	Analyze
3	Classify the types of earthwork equipments and explain. Mention its uses	BT-2	Understand
4	Write about the support structures for light equipments.	BT-6	Create

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QUESTION BANK

S.No	Unit No.		BT1	BT2	BT3	BT4	BT5	BT6	Total Question
1	Unit-1	Part-A	6	4	3	3	2	2	20
		Part-B	4	3	2	3	1	1	14
		Part-C	1	1	1	1	-	-	4
2	Unit-2	Part-A	6	4	3	3	2	2	20
		Part-B	4	3	2	3	1	1	14
		Part-C	1	1	1	1	-	-	4
3	Unit-3	Part-A	6	4	3	3	2	2	20
		Part-B	4	3	2	3	1	1	14
		Part-C	-	-	1	1	1	1	4
4	Unit-4	Part-A	6	4	3	3	2	2	20
		Part-B	4	3	2	3	1	1	14
		Part-C	1	1	-	1	-	1	4
5	Unit-5	Part-A	6	4	3	3	2	2	20
		Part-B	4	3	2	3	1	1	14
		Part-C	1	1	-	1	-	1	4

TOTAL NO.OF QUESTIONS IN EACH PART

PART A	100
PART B	70
PART C	20
TOTAL	190