

**Government of Karnataka**  
**Department of Technical Education**  
**Board of Technical Examinations, Bengaluru**

Course Title: **CONSTRUCTION TECHNOLOGY**

	Credits (L:T:P) : <b>4:0:0</b>	Total Contact Hours: <b>52</b>	Course Code: <b>15CE34T</b>
	Type of Course: <b>Lectures, Self Study &amp; Student Activity</b>	Credit : <b>04</b>	Core/ Elective: <b>Core</b>
CIE- 25 Marks		SEE- 100 Marks	

**Prerequisites:** Knowledge of science, Materials of Construction.

**COURSE OBJECTIVES:**

1. Understanding properties of soil, to know about concepts of load distribution and different types of foundation construction techniques.
2. Necessity, functions, suitability of building components and materials, construction techniques as per IS codes.
3. Exposure to dimensional aspects of openings, maintenance and repair works of building components and introduces preventive measures to be adopted in buildings located in areas prone to earth quake.

**On successful completion of this course, the student will be able to**

Course Outcome		CL	Linked PO	Teaching Hrs
CO1	Identify the types of soils, to know the properties, strength of soils, to suggest suitable type of foundations and to overcome the difficulties during excavation.	R/U/Ap	1,2,3,4,5,7,8,10	11
CO2	Describe the concepts of masonry buildings and to know the defects in their construction process and maintenance methods.	U/Ap	1,2,5,6,7,10	10
CO3	Plan the various types of openings and building components.	R/U/Ap	1,2,5,10	06
CO4	Explain the different types of staircases, Roofs and Floors.	R/U/Ap	1,2,5,10	12
CO5	Illustrate the necessity of temporary works and finishes in building construction considering the safety aspects.	U/Ap	1,2,5,6,7,10	07
CO6	Analyze the failure of building components, apply the concepts of maintenance and repair works to fight with extreme weather conditions and focus on the earthquake resistant buildings.	R/U/Ap	1,2,4,5,6,7,8,10	06
CO7	Manage the suggested or identified constructional engineering problems, formulate and solve in teams, in order to improve future problem solving ability and able to present it.	R/U/Ap/ C	1,2,3,4,5,6,7,8,9,10	*
<b>Total sessions</b>				<b>52</b>



Legend- R; Remember U: Understand Ap: Application Ay: Analysis C:Creation E: Evaluation

\* Related to Student activity beyond classroom hours.

### Programme outcome Attainment Matrix

Course	Programme Outcome									
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering Tools	Engineer and society	Environment & Sustainability	Ethics	Individual and Team work	Communication	Life long learning
<b>Construction technology</b>	3	3	1	2	3	3	3	2	-	3

**Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.**

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If  $\geq 40\%$  of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If  $< 5\%$  of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

### DETAILED COURSE CONTENTS

Course	COURSE CONTENTS	HOURS
1	<p><b>1. Soils and its Properties</b></p> <ol style="list-style-type: none"> <li>Types of soils and their suitability to construction of the structures.</li> <li>Bearing Capacity and determination of safe bearing capacity of the soils by plate load test.</li> <li>Method of improving the safe bearing capacity.</li> <li>SBC Values for various types of Soils.</li> </ol> <p><b>2. Foundations</b></p> <ol style="list-style-type: none"> <li>Definition and purpose of Foundation.</li> <li>Shallow foundations: Spread footing, combined footing, Strap footings &amp; Raft foundation.</li> <li>Deep foundation: Pile foundations-End bearing piles, friction piles, Foundation in Black Cotton Soil.</li> <li>Causes for failure of foundation and preventive measures.</li> <li>Necessity of shoring and strutting in foundation excavation</li> </ol>	11



	and process of dewatering.	
2	<p><b>3. Stone &amp; Brick masonry</b></p> <ol style="list-style-type: none"> <li>1. Terms used in stone masonry and brick masonry</li> <li>2. Coursed rubble masonry and Ashlar masonry.</li> <li>3. Stone Cladding works for facing of walls.</li> <li>4. List Bonds used in Brick masonry, Study of English bond &amp; Flemish bond and their uses.</li> <li>5. Construction of cavity walls.</li> <li>6. Partition walls-bricks, Concrete block, Glass, Plywood, hard board and aluminium.</li> </ol> <p><b>4. Dampness and Prevention of dampness</b></p> <ol style="list-style-type: none"> <li>1. Definition and causes of dampness</li> <li>2. Effects of dampness and prevention of dampness</li> <li>3. List the materials used for damp proof course.</li> </ol>	10
3	<p><b>5. Lintels &amp; Arches</b></p> <ol style="list-style-type: none"> <li>1. Necessity of lintels and arches, sunshades, sun breakers and canopy, portico.</li> <li>2. RCC lintels, sun shades, sun breakers, plinth beams and grade beams.</li> <li>3. Arch-Terms used, Types of arches-Flat, Segmental, and Semi-circular only.</li> </ol> <p><b>6. Doors and Windows</b></p> <ol style="list-style-type: none"> <li>1. Definition of doors, windows and ventilator and their purpose</li> <li>2. Standard size of doors, windows &amp; ventilators for different types of building as per I.S codes.</li> <li>3. Important types of doors, windows and ventilators in general use.</li> <li>4. Fixtures for doors, windows and ventilators.</li> </ol>	06
4	<p><b>Stairs</b></p> <ol style="list-style-type: none"> <li>1. Technical terms</li> <li>2. Requirements of a good stair.</li> <li>3. Classification of stairs, brief description &amp; their suitability.</li> </ol>	12

	<p>4. Uses of Ramps, Escalators and lifts.</p> <p><b>8.Floors</b></p> <ol style="list-style-type: none"> <li>1. Definitions and types of floors.</li> <li>2. Selection of flooring material</li> <li>3. Laying of Ceramic tile flooring, Vitrified flooring, Marble flooring, Wooden flooring, Vinyl flooring and Cement concrete floorings.</li> </ol> <p><b>9. Roof</b></p> <ol style="list-style-type: none"> <li>1. Definition of roof and common types of roofs used in general.</li> <li>2. Pitched roof- basic elements.</li> <li>3. Steel trusses.</li> <li>4. Common types of Roofing materials.</li> <li>5. Flat RCC roof-advantages and disadvantages.</li> <li>6. Weather proof course for flat roofs.</li> </ol>	
5	<p><b>10. Scaffolding and Shoring</b></p> <ol style="list-style-type: none"> <li>1. Scaffolding-component parts of scaffolding, Types of scaffolding and props.</li> <li>2. Use of Steel tube scaffolding</li> <li>3. Types of shoring-Raking, Flying &amp; Dead shores.</li> </ol> <p><b>11. Plastering, Pointing and Painting</b></p> <ol style="list-style-type: none"> <li>1. Object of plastering and requirements of good plaster.</li> <li>2. Method of cement plastering</li> <li>3. Types of plaster finishes-Smooth, sand faced, rough cast, pebble dash, depter, scrapped, textured finish.</li> <li>4. Method of pointing &amp; types of pointing.</li> <li>5. Methods of painting, distempering &amp; varnishing on different surfaces.</li> </ol>	07
6	<p><b>12. Ventilation systems</b></p> <ol style="list-style-type: none"> <li>1. Definition, Necessity &amp; requirements of ventilation system</li> <li>2. Types of ventilation</li> </ol> <p><b>13. Earthquake Resistant Buildings</b></p> <ol style="list-style-type: none"> <li>1. List Earthquake zones in India.</li> <li>2. Precautionary measures to be taken for buildings prone to</li> </ol>	06

	earth quake.	
	<b>14. Miscellaneous</b>	
	1. Water proofing, structural glazing, bamboo as a construction material, precast composed panel, anti-termite treatment.	



#### SUGGESTED STUDENT ACTIVITIES

The topic should be related to the course in order to enhance his knowledge, practical skill & and lifelong learning, communication, modern tool usage.

1. Collect different types of soil samples and to identify the properties.
2. Study the load distribution from structural components to soil and prepare a report.
3. Collect and study different photographs of various foundations and prepare a report.
4. Prepare a case study on foundation failure.
5. Identify different types of masonry materials and study their properties
6. Collect and study different photographs of stairs and arches.
7. Collect different types of flooring materials and prepare a report.
8. Collect and study the different types of Damp Proofing materials and prepare a report.
9. To prepare models of various types of foundations.
10. To prepare models of different types of masonry arrangements.
11. To prepare models of different types of scaffolding.
12. To prepare models of different types of roofs trusses.
13. Prepare a chart of Earth quake zones of India.
14. Understand the classification of earth quake zones of India.
15. Plan suitable schedule of openings for building works.
16. Plan a Weather proofing work for a flat roof.
17. Visit any nearby material testing laboratory and prepare a report on various tests conducted on building materials.
18. Write a report on advanced construction techniques used in civil engineering.
19. Prepare a report on prefabricated construction.
20. Watch a video on anti-termite treatment and prepare a presentation on anti- termite treatment.
21. Visit any nearby construction site and write a report on various construction activities.
22. Prepare a report on the use of modern construction equipment's in construction.
23. Studies on the strength of stabilised mud block masonry and burnt brick masonry using cement soil quarry dust mortar
24. Comparison of risk assessments for underground construction projects
25. Study of copper tailing as a plastering material
26. A study on preparation of bricks using copper tailing waste
27. Report of sandwiched panel elements as a partitioning wall material
28. Load bearing capacity of unreinforced brick masonry vault
29. Enhancement of characteristic strength and durability of brick masonry
30. Report of brick and brick masonry strength for your district.
31. Size effect of masonry joint on compressive strength of stabilised mud blocks

32. Case report on building cracks and causes and its prevention
33. Some studies on the use of strength booster low cost additives in burnt brick manufacture
34. Experimental investigation on brick masonry domes
35. Stabilised copper tailing blocks
36. Low cost roofing tiles
37. Some studies on the strength behaviour of fly ash bricks
38. Report and manufacture of masonry blocks different machines with different materials
39. Size effect of masonry joint on compressive strength of stabilised mud blocks
40. Liquefactions floors and roofs
41. Strength analysis of cement stabilised soil blocks a case report
42. Low cost bricks making
43. Appropriate technology to manufacture common building burnt brick
44. Behaviour of masonry wall subjected to dynamic load
45. Development of b.c soil stabilised building blocks using lime and fly ash
46. A laboratory report on the utilisation of red mud in pavements and as building material
47. Fly ash mosaic flooring tiles
48. Analysis of hyperbolic paraboloid shell foundation
49. Characteristic report of BC soil of village
50. Flexural behaviour of gfrp wrapped masonry beams
51. Fly ash bricks
52. Bioclimatic building design in three climate zones in state
53. Earthquake resistant wooden house Design procedure for pile caps
54. Control Of Corrosion On Underwater Piles
55. Deep Foundations Case Histories
56. Design of Shallow Foundations
57. Analysis Of Stability Of existing Slopes
58. Development Of BC Soil Stabilised Building Blocks Using Lime And Flyash
59. DIAGRID
60. Soil Nailing

#### **NOTE**

1. Students should select any one of the above or other topics relevant to the subject approved by the concerned faculty, individually or in a group of 3 to 5. Students should mandatorily submit a written report and make a presentation on the topic. The task should not be repeated among students. Report will be evaluated by the faculty as per rubrics. Weightage for 5 marks Internal Assessment shall be as follows:

Unsatisfactory 1, Developing 2, Satisfactory 3, Good 4, Exemplary 5

2. Reports should be made available along with bluebooks to IA verification officer.



### Example of model of rubrics / criteria for assessing student activity

Dimension	Students score (Group of five students)				
	STUDENT 1	STUDENT 2	STUDENT 3	STUDENT 4	STUDENT 5
Rubric Scale	Unsatisfactory 1, Developing 2, Satisfactory 3, Good 4, Exemplary 5				
1.Organisation	2				
2.Fulfill team's roles & duties	3				
3.Conclusion	4				
4.Conventions	5				
Total	14				
Average=(Total /4)	3.5=4				
<b>Note: Concerned faculty (Course coordinator) must devise appropriate rubrics/criteria for assessing Student activity for 5 marks One activity on any one CO (course outcome) may be given to a group of FIVE students</b>					

Note: Dimension should be chosen related to activity and evaluated by the course faculty.

Dimension	Rubric Scale				
	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Good	5 Exemplary
1.Literature	Has not included relevant info	Has included few relevant info	Has included some relevant info	Has included many relevant info	Has included all relevant info needed
2. Fulfill team's roles & duties	Does not perform any duties assigned	Performs very little duties	Performs partial duties	Performs nearly all duties	Performs all duties of assigned team roles
3.Communication	Poor	Less Effective	Partially effective	Effective	Most Effective
4.Conventions	Frequent Error	More Error	Some Error	Occasional Error	No Error

**Course delivery:** The course will be delivered through lectures, site visits, models and Power point presentations/ Videos.



## Course Assessment and Evaluation Scheme:

	What		To whom	When/Where (Frequency in the course)		Max Marks	Evidence collected	Course outcomes
Direct Assessment meth	CIE	IA	Students	Thrice test (Average of three tests)	Test 1	20	Blue books	CO1, CO2
					Test 2			CO3, CO4
					Test 3			CO5, CO6
	Activities			05	Written Report	CO7		
	SEE	End Exam		End of the course	100	Answer scripts at BTE	1,2,3,4,5,6	
Indirect Assessment	Student Feedback on course		Students	Middle of the course			Feedback forms	1 & 2 Delivery of course
	End of Course Survey			End of the course			Questionnaires	1,2,3, 4 & 5, 6 Effectiveness of Delivery of instructions & Assessment Methods

\*CIE – Continuous Internal Evaluation

\*SEE – Semester End Examination

**Note:** I.A. test shall be conducted for 20 marks. Average marks of three tests shall be rounded off to the next higher digit.

## Weightage of Marks and blue print of marks for SEE

Unit	Major Topics	Hours Allotted	Questions to be set for SEE			Marks weightage	weightage (%)	A*	B*
			Cognitive Levels						
			R	U	Ap				
1	Soil and its Properties, Foundation	11	17%	50%	33%	30	21	2	2
			<b>5</b>	<b>15</b>	<b>10</b>				
2	Stone & Brick masonry, Dampness and its Prevention	10	0%	67%	33%	30	19	2	2
			<b>0</b>	<b>20</b>	<b>10</b>				
3	Lintels & Arches, Doors and Windows	6	33%	33%	33%	15	12	1	1
			<b>5</b>	<b>5</b>	<b>5</b>				
4	Stairs , Floors, Roofs	12	14%	71%	14%	35	23	1	3
			<b>5</b>	<b>25</b>	<b>5</b>				
5	Scaffolding and Shoring, Plastering, Pointing and Painting	7	0%	75%	25%	20	13	2	1
			<b>0</b>	<b>15</b>	<b>5</b>				
6	Miscellaneous	6	33%	33%	33%	15	12	1	1
			<b>5</b>	<b>5</b>	<b>5</b>				
<b>Total</b>		<b>52</b>	<b>14%</b>	<b>59%</b>	<b>28%</b>	<b>145</b>	<b>100</b>	<b>9</b>	<b>10</b>
			<b>20</b>	<b>85</b>	<b>40</b>				

Legend- R; Remember U: Understand Ap: Application Ay: Analysis C:Creation E: Evaluation

A\*-SEE questions to be set for (05marks) in Part – A

B\*- SEE questions to be set for (10marks) in Part – B



Questions for CIE and SEE will be designed to evaluate the various educational components such as:

Sl. No	Bloom's taxonomy	% in Weightage
1	Remembering and Understanding	73
2	Applying the knowledge acquired from the course	28
3	Analysis	0
4	Synthesis ( Creating new knowledge)	0
5	Evaluation	0

### FORMAT OF I A TEST QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks			
Ex: I test/6 <sup>th</sup> week of sem 10-11 Am	I/II SEM		20			
	Year:					
Name of Course coordinator :			Units: __			
CO's: _____						
Question no	Question		MARKS	CL	CO	PO
1						
2						
3						
4						

**Note: Internal choice may be given in each CO at the same cognitive level (CL).**

### MODEL QP FOR CIE

Test/Date and Time	Semester/year	Course/Course Code	Max Marks			
Ex: I test/ 6 <sup>th</sup> week of sem 10-11 Am	III SEM	CONSTRUCTION TECHNOLOGY	20			
	Year: 2015-16	Course code: 15CE34T				
Name of Course coordinator :			Units:1,2 CO: 1,2			
Note: Answer all questions						
Question			CL	CO	PO	
1	a) List the objectives of foundation?		R	1	1,2	
	<b>OR</b>					
	b) Explain with the help of sketch the Raft foundation.		U			
2	a) Explain the determination of safe bearing capacity of soils by plate load test.		A	1,2	1,2	
	<b>OR</b>					
	b) What are the points to be observed while construction of brick masonry?		U			
3	a) What are the effects of Dampness?		A	2	1,2	
	<b>OR</b>					
	b) Distinguish between Rubble stone masonry and Ashlar masonry.		U			





## TEXT BOOKS & REFERENCES

1. Building construction—B.C.Punmia; Ashok Kumar Jain; Arun Kumar Jain, Firewall Media, 2005
2. Building Construction- P.C.Varghese, PHI Learning Pvt. Ltd.2009
3. Building construction—S.C.Rangwala, Charotar Publishing House Pvt. Limited, 2009
4. Building construction and Materials —Gurucharan Singh, Jain Book Agency
5. Building construction—Sushil kumar, Standard Publishers Distributors Delhi, 2001

### IS Codes

1. IS 2720: Methods of tests for soils.
2. IS 1904-(1986): Code of Practice for Design and Construction of Foundations in Soils: general requirements.
3. IS 1080-(1985): Code of Practice for Design And Construction of Shallow Foundations in Soils.
4. IS 2212-(1991): Code of practice for brick works.
5. IS 1597-1 & 2(1992): Construction of Stone Masonry-Code of practice.
6. IS 4326 (1993) Code of practice for Earth quake resistant design of structures.
7. IS 1893-1 (2002) Criteria for Earth quake resistant design of structures

### E –Learning

1. <https://www.youtube.com/watch?v=rPIOd2qUcCI>
2. <https://www.youtube.com/watch?v=nMII3krK-GI>
3. <https://www.youtube.com/watch?v=ob4oOtx9m40>
4. <https://www.youtube.com/watch?v=6mncKCII8pI>
5. <https://www.youtube.com/watch?v=6OAH09zgeXM>
6. <https://www.youtube.com/watch?v=C1byOuqC684>
7. [https://www.youtube.com/watch?v=j1bL\\_1NBvIc](https://www.youtube.com/watch?v=j1bL_1NBvIc)
8. <https://www.youtube.com/watch?v=cQGDP8kWEMM>
9. <https://www.youtube.com/watch?v=NxNoH86WJJI>
10. <https://www.youtube.com/watch?v=rh1Z-i14-h0>
11. <https://www.youtube.com/watch?v=veF4uSUtrEY>
12. <https://www.youtube.com/watch?v=USat6LdENzU>
13. <https://www.youtube.com/watch?v=OYjEUXON8cY>
14. <http://www.nicee.org/EQTips.php>



MODEL QUESTION PAPER  
III Semester Diploma Examination.

**CONSTRUCTION TECHNOLOGY**

TIME: 3 Hours

Max. Marks: 100

**PART A**

**Answer any six questions out of nine. Each question carries 5 marks: (5x6=30)**

1. What are the different methods of improving the bearing capacity of soils? Explain any three methods.
2. Briefly discuss the causes for failure of foundation.
3. Explain the following terms a) frog b) quoins c) jambs d) reveals e) copings
4. What are the causes of dampness in buildings? Explain any one method of preventing the dampness?
5. Sketch and label the various components of an arch.
6. Briefly explain the different types of fittings used in doors.
7. Enumerate the merits and demerits of concrete flooring.
8. Explain with a neat sketch a) closed couple roofs.
9. List the Earth quake zones of India.

**PART B**

**Answer any seven questions from a set of ten questions each question carries 10 marks: - (10x7=70)**

1. Explain the determination of safe bearing capacity of soils by plate load test.
2. Explain with a neat sketch. i) Combined footing ii) Raft foundation
3. a) Explain with neat sketch ashlar masonry.  
b) Explain the following; i) Glass partition, ii) Aluminium partition
4. a) Explain with a neat sketch English bond for 1½ brick thick wall.  
b) Define cavity wall. Explain the construction of cavity wall.
5. a) Explain with a neat sketch a) Bay window b) louvered windows,  
b) Distinguish between a spiral staircase and a helical stair case.
6. a) Draw a neat sketch of a dog legged staircase.  
b) Enumerate the merits and demerits of concrete flooring.
7. a) With a neat sketch explain Queen post roof truss.  
b) What are the advantages and disadvantages of flat roofs?
8. Explain with a neat sketch: i) Single or Brick layers scaffolding ii) Cantilever or Needle scaffolding.
9. Explain the procedure of painting of plastered walls with plastic emulsion paint.
10. a) What are the requirements of a good ventilation system?  
b) What are the advantages of pre-cast composed panels?



# MODEL QUESTION BANK

Code: 15CE34T

Diploma in Environmental Engineering

III Semester

Course title: CONSTRUCTION TECHNOLOGY

**CO 1:** Identify the types of soils, to know the properties, strength of soils, to suggest suitable type of foundations and to overcome the difficulties during excavation.

## REMEMBER LEVEL QUESTIONS

1. List out the different types of soil and which type of soil is most suitable for building construction.
2. Define bearing capacity of soil.
3. What are the requirements of a good foundation?

## UNDERSTANDING LEVEL QUESTIONS

1. Explain the methods of improving the safe bearing capacity of soils?
4. Define foundation. Discuss various functions served by foundations.
5. What is the difference between a shallow foundation and a deep foundation?
6. Briefly explain the common types of shallow foundations with a neat sketch.
7. Explain with the help of sketches the following types of foundation
  - a) Stepped footing
  - b) Combined footing
  - c) Raft foundation
  - d) Pile foundation
8. Explain the situations in which pile foundation is preferred.
9. Classify the various types of piles based on i) function and ii) materials and composition.
10. What is the difference between end bearing pile and a friction pile?
11. What are the causes for failure of foundation?
12. Suggest the prime preventive measures to failure of foundation.
13. Under which circumstances the shoring is necessary.
14. Distinguish between the shoring and strutting in foundation.
15. Explain in brief the process of dewatering during excavation.

## APPLICATION LEVEL QUESTIONS

1. Explain the determination of safe bearing capacity of soils by plate load test.

**CO 2:** Understand the concepts of masonry buildings and to know the defects in their construction process and maintenance methods.

## UNDERSTANDING LEVEL QUESTIONS

1. Write short notes on i) header bond ii) stretcher bond iii) Dutch bond iv) garden wall bond
2. Define cavity wall. What are its advantages?
3. Define a partition wall. Enumerate various requirements to be fulfilled by a partition wall.
4. Differentiate between the following:
  - a) Header and stretcher
  - b) king closer and queen closer
  - c) sill and lintel
  - d) cornice and corbels
5. Explain the following terms a) frog b) quoins c) jambs d) reveals e) copings d) throating e) Freeze
6. How do you lay stone cladding work for facing of walls?



7. Differentiate between English bond and Flemish bond.
8. Explain with the help of sketches general features of a cavity wall.
9. Explain various causes of dampness in buildings.
10. What are ill effects of dampness in buildings?
11. Explain various methods of damp proofing?
12. What are the requirements of an ideal material for damp proofing?
13. List out the different materials used in damp proof course.

#### **APPLICATION LEVEL QUESTIONS**

14. Explain the following: a) Glass partition b) Aluminium partition c) plywood partition d) Hard board partition e) brick partition
15. Explain with a neat sketch English bond for 1½ brick thick wall.
16. Explain with a neat sketch Flemish bond for 1½ brick thick wall.
17. Explain with neat sketch coursed rubble masonry.
18. Explain with neat sketch ashlar masonry.

**CO 3:** Plan the various types of openings and building components.

#### **REMEMBER LEVEL QUESTIONS**

1. List the different types of windows used in general.
2. Define the following terms i) mullion ii) transom iii) reveal iv) style v) horn.
3. Classify the lintels based on the materials used.

#### **UNDERSTANDING LEVEL QUESTIONS**

4. What are lintels? Sketch a lintel and combined sunshade for an external doorway.
5. Explain briefly the RCC lintel with chejja.
6. Distinguish between Intrados and extrados.
7. Write short notes on a) spandrel of an arch b) flat arch c) segmental arch d) semi-circular arch
8. Distinguish between through lintel and cut lintels.
9. Write a note on i) sliding door ii) revolving door iii) collapsible door.

#### **APPLICATION LEVEL QUESTIONS**

1. Sketch and label the various components of an arch.
2. Explain with a neat sketch the following types of Windows i) Louvered window ii) bay window iii) lantern window iv) sky light
3. Explain with a neat sketch the following types of Doors i) Flush doors ii) Louvered doors.
4. Briefly explain the different types of fittings used in doors.
5. What are the functions of a ventilator? How it is different from a window.

**CO 4:** Understand the different types of staircases, Roofs and Floors.

#### **REMEMBER LEVEL QUESTIONS**

1. State briefly the requirements of a good stair case.



2. State the circumstances under which you use the following types of stairs i) Dog legged stair ii) open newel stair iii) half turn geometrical stair iv) spiral stair
3. List out the various special staircases.
4. Define Flooring. What are the different types of Floorings?
5. List the common types of roofing materials.

### UNDERSTANDING LEVEL QUESTIONS

6. Explain the following terms i) Landing ii) Nosing iii) Winders iv) Stringer v) Newel vi) Hand rail
7. Distinguish between a spiral staircase and a helical stair case.
8. Indicate the situation where you would recommend a) ramp b) escalators
9. Write a short note on a) escalator b) lift
10. What are the types of lifts?
11. Enumerate the merits and demerits of concrete flooring.
12. What are the characteristics of a good flooring material?
13. Explain the following terms a) Pitch b) Eaves c) Gable d) Ridge e) Valley
14. Briefly explain the classification of roofs.
15. What are the advantages and disadvantages of flat roofs?

### APPLICATION LEVEL QUESTIONS

1. Draw a neat sketch of a dog legged staircase.
2. Explain the method of laying of cement concrete flooring.
3. Explain the method of laying wooden flooring.
4. Explain the method of laying marble flooring.
5. Explain with a neat sketch a) Lean to Roofs b) Couple Roofs
6. Explain with a neat sketch a) Closed couple roofs b) Collar Roofs c) Purlin Roofs
7. With a neat sketch explain Queen post roof truss.
8. With a neat sketch explain King post roof truss
9. Explain the procedure for weather proofing of flat roofs.
10. Explain with a neat sketch any one type of steel trusses.

**CO 5:** Necessity of temporary works and finishes in building construction considering the safety aspects.

### UNDERSTANDING LEVEL QUESTIONS

1. What do you understand by scaffolding? What are the essential requirements a good scaffolding?
2. Explain the terms a) Putlogs b) Braces c) Toe board d) Ledgers e) Standards
3. Explain steel tube scaffolding with a neat sketch.
4. What is the necessity of shoring? List the different methods of shoring.
5. What are the objectives of plastering and pointing?
6. What are the characteristics of good plastering materials?
7. List the tools used for plastering.
8. Briefly explain the method of cement plastering.



9. Briefly explain sand faced type of plaster finishing.
10. Briefly explain pebble dash type of plaster finishing.
11. Write a note on various defects in plastering.
12. List the different methods of pointing? Explain rubbed pointing.
13. What are the objects of painting?

### APPLICATION LEVEL QUESTIONS

1. Explain with a neat sketch Single or Brick layers scaffolding.
2. Explain with a neat sketch cantilever or needle scaffolding.
3. Explain with a neat sketch double or masons scaffolding.
4. Explain with a neat sketch Raking type of shoring.
5. Explain with a neat sketch flying type of shoring.
6. Explain with a neat sketch dead type of shoring.
7. Explain briefly the procedure of painting of plastered walls with plastic emulsion paint.
8. Explain briefly the procedure of painting of new wood work with synthetic enamel paint.
9. Explain briefly the procedure of painting with dry distemper.
10. Briefly explain the method of polishing wood work using varnish.

**CO 6:** Analyze the failure of building components, apply the concepts of maintenance and repair works to fight with extreme weather conditions and focus on the earthquake resistant buildings.

### REMEMBER LEVEL QUESTIONS

1. List the Earth quake zones of India.
2. Write a note on termites and their attack on buildings.
3. Write a short note on bamboo construction.

### UNDERSTANDING LEVEL QUESTIONS

4. What are the reasons for providing ventilators in buildings?
5. What are the requirements of a good ventilation system?
6. Briefly explain the method of water proofing in buildings.
7. What is the meaning of structural glazing? Explain briefly.
8. What are the advantages of pre-cast composed panels.

### APPLICATION LEVEL QUESTIONS

1. Explain how you reduce earth quake effects in important buildings.
2. Explain how preconstruction anti termite treatment is carried out.
3. Explain how post construction anti termite treatment is carried out.

