



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

CIVIL ENGINEERING

TUTORIAL QUESTION BANK

Course Title	BUILDING MATERIALS CONSTRUCTION AND PLANNING
Course Code	ACE007
Class	IV Semester
Branch	Civil Engineering
Year	2018-19
Course Coordinator	Mr. K. AnandGoud, Assistant Professor, CE
Course faculty	Mr.K. AnandGoud, Assistant Professor, CE Mr.P Vinaykumar, Assistant Professor, CE

COURSE OBJECTIVES:

The course should enable the students to:

I	Develop knowledge of material science and behaviour of various building materials used in construction.
II	Identify the construction materials required for the assigned work.
III	Provide procedural knowledge of the simple testing methods of cement, lime and concrete etc.
IV	List the requirements and different types of stairs.

COURSE LEARNING OUTCOMES:

Students, who complete the course, will have demonstrated the ability to do the following:

CACE007.01	Predict the properties of building stones and its classifications.
CACE007.02	Understand the concept of various methods of manufacture of bricks.
CACE007.03	Identify rock using basic geological classification systems.
CACE007.04	Differentiate the fine aggregates and coarse aggregates under various views.
CACE007.05	Explain various types of cements and their applications in construction various field and laboratory tests on cement.
CACE007.06	Analyse the importance of mineral and chemical admixtures, requirements of the concrete in construction.
CACE007.07	Explain different types of lintel, arches and the materials which are commonly used for construction.
CACE007.08	Explain the suitability of floors in buildings like mosaic flooring, terrazzo flooring, rubber flooring, asphalt flooring.
CACE007.09	Understand the different of trusses, rcc roofs, madras terrace/shell roofs.
CACE007.10	Explain the foundations and uses of different types of foundations.
CACE007.11	Develop the building walls and foundations how they will help for buildings and details to precise the type of footings.
CACE007.12	Explain the classification of various types of woods.State the properties, seasoning of timber.
CACE007.13	Understand the types of properties of wood, aluminium and manufacture of glass.
CACE007.14	Differentiate the uses of galvanized iron, fiber-reinforcement plastics, steel and aluminium in construction.
CACE007.15	Understand masonry,english and flemish bonds.Finishing plastering painting and know about building services.
CACE007.16	Explain geometrical design of rcc doglegged and open-well stairs. Classification of staircase and technical terms and types of stairs.
CACE007.17	Principle of building planning and by laws and standards of building material components and orientation of the building.
CACE007.18	Possess the knowledge and skills for employability and to succeed in national and international level competitive examinations.
CACE007.19	Understand the requirements of good stairs.
CACE007.20	Design RCC doglegged and open-well stairs

UNIT-I

STONES, BRICKS AND AGGREGATES

Part - A (Short Answer Questions)

S.No.	Questions	Bloom's Taxonomy Level	Course Learning Outcome
1	Why you choose stone as a building material?	Understand	CACE007.01
2	Write down the characteristics of good stone?	Remember	CACE007.01
3	Differentiate between rock and stone.	Remember	CACE007.01
4	State any four advantages of bricks as compared with stones	Understand	CACE007.01
5	What is the common classification of aggregates?	Understand	CACE007.01
6	What are the properties and uses of First class bricks?	Understand	CACE007.02
7	Name the types of rocks according to geological classification.	Remember	CACE007.02
8	State the classification of rocks with examples.	Understand	CACE007.02
9	Differentiate the comparison between brick stone and stonework?	Understand	CACE007.02
10	What are the constituents of good brick earth?	Remember	CACE007.02
11	Name the operations involved in the manufacture of brick.	Remember	CACE007.02
12	Write down the tests for coarse aggregate?	Understand	CACE007.02
13	What is dressing of stones?	Remember	CACE007.03
14	Define tempering?	Remember	CACE007.03
15	What are the physical quality requirements of the aggregates?	Understand	CACE007.03
16	State the points to be considered in selecting a site for the quarry.	Understand	CACE007.03
17	List out the names of bricks for special use.	Remember	CACE007.03
18	What are the advantages & disadvantages of clamp burning?	Remember	CACE007.04
19	State the points to be considered in selecting a site for quarry of stones.	Remember	CACE007.04
20	State the purpose of dressing of stones.	Understand	CACE007.04

Part - B (Long Answer Questions)

1	What are the operations involved in manufacturing of bricks?	Understand	CACE007.01
2	Illustrate the geological, physical and chemical classification of rocks?	Remember	CACE007.01
3	Describe the characteristics of good building stones.	Remember	CACE007.01
4	Illustrate the classification of bricks with neat sketch.	Understand	CACE007.01
5	What do you understand about the dressing of stones and explain briefly?	Remember	CACE007.01
6	What test are to be made on bricks explain any three of them?	Remember	CACE007.02
7	Explain the qualities of good building stones.	Remember	CACE007.02
8	Write the various methods of quarrying of stones. Explain each method briefly.	Understand	CACE007.02
9	Explain in detail the process of manufacturing of bricks.	Understand	CACE007.02
10	State the uses of stones in various construction works.	Remember	CACE007.02
11	Elaborate the following a) Tests on the aggregates b) Measurement of moisture content of aggregates	Remember	CACE007.02
12	What are the various methods of stone quarrying and explain about wedge quarrying.	Understand	CACE007.02
13	Discuss the classification of bricks and explain about their qualities, special types of bricks?	Understand	CACE007.03
14	Write Short notes on: i) Tempering ii) Frog iii) Grounded – moulded bricks iv) Tunnel kiln	Remember	CACE007.03
15	Explain briefly factors affecting workability of aggregates?	Understand	CACE007.03

16	State the various stages involved in preparation of bricks. Explain briefly the preparation of brick earth.	Understand	CACE007.03
17	Give a detail account on classification of aggregates?	Remember	CACE007.03
18	Explain shape and texture of the aggregate?	Understand	CACE007.03
19	What is grading of aggregates? How does it affect the properties of concrete?	Remember	CACE007.04
20	Explain the uses of the following building materials. a) Marble b) Granite c) Basalt d) Sandstone	Understand	CACE007.04
UNIT-II			
CEMENT AND ADMIXTURES			
Part - A (Short Answer Questions)			
1	List out the ingredients of cement.	Remember	CACE007.05
2	List out the various grades of cement in India.	Remember	CACE007.05
3	What do you mean by setting time of cement?	Remember	CACE007.05
4	Enumerate various types of cement?	Understand	CACE007.05
5	What are admixtures?	Understand	CACE007.05
6	What are different types of admixtures?	Remember	CACE007.05
7	Give the chemical composition of cement.	Understand	CACE007.06
8	What are the properties of OPC?	Remember	CACE007.06
9	Describe the role of admixtures.	Understand	CACE007.06
10	List harmful constituents in cement.	Understand	CACE007.06
11	State four important uses of rapid hardening cement.	Remember	CACE007.06
12	What is a chemical admixture?	Remember	CACE007.06
13	What are the different types of chemical admixture?	Understand	CACE007.07
14	What are mineral admixtures?	Understand	CACE007.07
15	What are the different types of mineral admixtures?	Understand	CACE007.07
16	What are the properties of cement?	Understand	CACE007.07
17	List the various uses of cement.	Remember	CACE007.07
18	State different standard test of cement and its aim?	Understand	CACE007.08
19	What are the classifications of cement?	Remember	CACE007.08
20	List out the uses of Portland pozzolana cement?	Understand	CACE007.08
Part - B (Long Answer Questions)			
1	Explain briefly about the tests conducted on cement to find its properties?	Understand	CACE007.05
2	Describe in briefly any type of manufacture of cement with the help of flow diagram?	Understand	CACE007.05
3	Explain about different mineral admixtures?	Understand	CACE007.05
4	Explain the field tests on cement? Write the chemical composition of ordinary Portland cement.	Remember	CACE007.05
5	Explain why gypsum is added during the manufacture of cement?	Remember	CACE007.05
6	Differentiate between the following: i) Initial setting time and final setting time ii) Hydration and hardening of cement	Understand	CACE007.05
7	What do you understand by the term setting and hardening of cement?	Remember	CACE007.06
8	Describe the role played by super plasticizers in concrete.	Understand	CACE007.06
9	Explain about different chemical admixtures?	Understand	CACE007.06
10	Write short notes on: a) Soundness test of cement b) Tensile strength test of cement	Remember	CACE007.06
11	Describe the method of manufacture of cement by dry process by flow diagram.	Remember	CACE007.06
12	What tests are conducted in laboratory for the cement? Explain any one method.	Remember	CACE007.06
13	Explain action of plasticizers and classification of super plasticizer?	Understand	CACE007.07
14	Explain about hydration of cement?	Understand	CACE007.07
15	Explain physical properties and chemical composition of Portland cement?	Understand	CACE007.07
16	Distinguish between natural and chemical admixtures?	Understand	CACE007.07
17	Describe wetprocess of cement manufacturing?	Understand	CACE007.07
18	What are the precautions taken for shortage of cement?	Remember	CACE007.08

19	Explain about special purpose of cements of the following a) Rapid hardening Portland cement b) Low heat Portland cement	Understand	CACE007.08
20	Describe the test done to determine aggregate abrasion value?	Understand	CACE007.08
UNIT – III			
BUILDING COMPONENTS AND FOUNDATIONS			
Part - A (Short Answer Questions)			
1	Define arch.	Understand	CACE007.09
2	What are the components of an arch?	Remember	CACE007.09
3	Define span of an arch	Remember	CACE007.09
4	Define rise of an arch.	Understand	CACE007.09
5	Define lintel.	Remember	CACE007.09
6	Write the classification of lintels?	Understand	CACE007.09
7	Explain about the types of roofs?	Remember	CACE007.10
8	What are the types of trussed roofs?	Understand	CACE007.10
9	What are the categories of roof?	Understand	CACE007.10
10	List out the advantages of flat roof and curved roofs.	Remember	CACE007.10
11	Name important metals used in building construction.	Remember	CACE007.10
12	Differentiate between brick lintels and steel lintels?	Understand	CACE007.10
13	What is Shallow foundation?	Understand	CACE007.11
14	What are the advantages of damp proof coursing?	Remember	CACE007.11
15	Define water distribution system.	Understand	CACE007.11
16	What are the main types of foundations?	Understand	CACE007.11
17	What is grillage footing?	Remember	CACE007.12
18	Name any four types of shallow foundations.	Remember	CACE007.12
19	Name the types of timber floors.	Remember	CACE007.12
20	What are the advantages of R.C.C. floors?	Understand	CACE007.12
Part - B (Long Answer Questions)			
1	What are different types of arches that are used for engineering construction? Describe any three types in detail with sketches.	Understand	CACE007.09
2	How are new foundations constructed near old existing structures?	Understand	CACE007.09
3	Discuss various cases of load transmitted to lintel from the wall supported	Understand	CACE007.09
4	Explain the construction of composite floors briefly	Remember	CACE007.09
5	Describe classification of lintel based on materials and work man ship.	Remember	CACE007.09
6	What do you Understanding by a) Ventilation b) Air conditioning Explain the necessity of each of them?	Understand	CACE007.09
7	Write a short note on: a) Storage tanks b) Water requirements of building c) Materials for service pipe	Remember	CACE007.10
8	Define roof covering? Explain various types of roof coverings mainly used in India?	Understand	CACE007.10
9	Describe classification of lintel based on materials and work man ship.	Understand	CACE007.10
10	Write short notes on the following, a) Flat arch b) Relieving arch c) Bull's arch d) Elliptical arch	Remember	CACE007.10
11	List the different types of foundations, Explain shallow foundations.	Remember	CACE007.11
12	Discuss about the combined footings.	Understand	CACE007.11
13	Sketch and explain about strap and mat footing.	Understand	CACE007.11
14	Write a short note with neat sketch for the Spread footings.	Understand	CACE007.11

15	Define the terms, 1) Ultimate bearing capacity 2) Allowable bearing capacity of soil	Understand	CACE007.11
16	a) Explain the requirements of good foundation b) Explain the types of shallow foundations in brief.	Understand	CACE007.11
17	Explain the following, a) R.C.C. floor b) Hollow block and rab floors.	Understand	CACE007.12
18	Explain in detail about a) King post truss. b) Queen post truss.	Remember	CACE007.12
19	Write the differences between shallow foundation and deep foundation.	Understand	CACE007.12
20	a) Explain the construction of composite floors briefly b) What are the advantages of composite floors?	Understand	CACE007.12

UNIT-IV

WOOD, ALUMINIUM AND GLASS

Part - A (Short Answer Questions)

1	Define Seasoning of timber.	Remember	CACE007.13
2	What are the important qualities of timber?	Remember	CACE007.13
3	What are the properties of glass?	Remember	CACE007.13
4	Define the following a) pitch b) heart wood	Understand	CACE007.13
5	What are the important qualities of timber?	Understand	CACE007.13
6	Explain about tools used in brick masonry	Remember	CACE007.14
7	What are the different types of glass?	Understand	CACE007.14
8	What role does aluminium play in building construction?	Remember	CACE007.14
9	Write down the general requirements of mortars?	Understand	CACE007.14
10	What is concrete Block masonry?	Understand	CACE007.14
11	What is brick masonry?	Remember	CACE007.15
12	Name any four wood based products	Remember	CACE007.15
13	Define the following: i) Back ground ii) Blistering	Understand	CACE007.15
14	Write a short note on FGRP.	Understand	CACE007.15
15	State the defects in timber.	Understand	CACE007.15
16	What are the difference between plastering and pointing?	Understand	CACE007.15
17	Name important non-metals used in the building construction?	Remember	CACE007.16
18	Define stone masonry? What are the uses of stone masonry?	Understand	CACE007.16
19	What is the use of following tools in the construction of stone masonry a. Plumb rule b. Spirit level c. Line and pin	Remember	CACE007.16
20	Define the following terms: a) Stretcher b) Quoins	Understand	CACE007.16

Part - B (Long Answer Questions)

1	What is brick masonry? State and explain briefly the various classifications of brick masonry?	Understand	CACE007.13
2	Describe the ashlar stone masonry and state its uses in construction of structures?	Remember	CACE007.13
3	What is Reinforced concrete cement (R.C.C) and explain its importance in construction of structures?	Remember	CACE007.13
4	Compare the merits and demerits of stone masonry and brickmasonry?	Understand	CACE007.13
5	a) Describe briefly about the types of bonds in brick work? b) Explain in detail about Composite materials and its Uses?	Remember	CACE007.13
6	a) Explain in detail the causes of decay of wood work and their preservation? b) Explain in detail about the manufacturing process of aluminium?	Understand	CACE007.14
7	Describe the process of manufacturing of Glass? What are the Uses of glass in construction industry?	Remember	CACE007.14

8	Explain in detail about Reinforced Plastics? What are the properties and uses?	Understand	CACE007.14
9	Write a short note on Ceramic products? What are the various applications of ceramic products?	Understand	CACE007.14
10	Explain any three-common industrial product of timber and defects in timber with suitable diagrams?	Remember	CACE007.14
11	a) Explain about horizontal reinforcement brick masonry with figure? b) Explain about vertical reinforcement brick masonry with figure?	Remember	CACE007.15
12	Explain the following: a) Plaster of Paris b) Linoleum	Understand	CACE007.15
13	Explain different types of stones used for various purposes in construction?	Understand	CACE007.15
14	Explain the following with neat sketch a) king closer b) Queen closer.	Remember	CACE007.15
15	Explain the fire-resisting properties of the following material a) Timber b) Stone c) Bricks d) Concrete	Understand	CACE007.15
16	Explain about seasoning of timber and objects of seasoning of timber	Understand	CACE007.15
17	What are the properties of glass and types of glasses?	Remember	CACE007.16
18	Discuss the special types and uses of glass?	Remember	CACE007.16
19	Explain in detail about Classifications of bonds with neat sketches?	Remember	CACE007.16
20	Illustrate general principles in the stone masonry construction?	Understand	CACE007.16

UNIT-V

STAIRS AND BUILDING PLANNING

Part - A (Short Answer Questions)

1	Write the Requirements of a good stair?	Remember	CACE007.17
2	Define Balustrade.	Remember	CACE007.17
3	Distinguish between riser and tread?	Remember	CACE007.17
4	Define staircase and list out the technical terms associated with the design and construction of stairs?	Understand	CACE007.17
5	How to determine the Step Dimension of riser and going?	Understand	CACE007.17
6	Define building planning. State its significance.	Remember	CACE007.17
7	Write briefly the factors affecting building planning.	Understand	CACE007.17
8	Write any four basic principles of building planning?	Remember	CACE007.18
9	What is orientation?	Understand	CACE007.18
10	State the factors affecting orientation?	Understand	CACE007.18
11	What is a local authority?	Remember	CACE007.18
12	State the functions of local authority.	Remember	CACE007.19
13	Define floor area ratio?	Understand	CACE007.19
14	Mention the different types of area of rooms.	Understand	CACE007.19
15	Classify the building based on type on construction.	Understand	CACE007.19
16	Define open space.	Understand	CACE007.20
17	What are the points to be considered while selecting a site for any particular building?	Remember	CACE007.20
18	What are building bye laws?	Understand	CACE007.20
19	Define floor space index?	Remember	CACE007.20
20	Explain residential building	Understand	CACE007.20

Part - B (Long Answer Questions)

1	Explain the following terms: i) Step ii) Riser iii) Thread iv) Noising	Understand	CACE007.17
2	a) State briefly the requirement of good stair.	Remember	CACE007.17

	b) State the various types of stairs through flow diagrams.		
3	Explain about classification of stairs with figure	Remember	CACE007.17
4	Elaborate the Half turn stairs and Continuous stairs with neat sketches.	Understand	CACE007.17
5	Elaborate Components parts of building with following structural components?	Remember	CACE007.17
6	What are the requirements for submission of drawing for issue of permission for construction?	Understand	CACE007.17
7	Discuss briefly about the following i) Wooden stairs ii) RCC stairs	Remember	CACE007.17
8	Explain briefly the following principles in planning the building?	Understand	CACE007.18
9	Explain briefly the factors affecting building planning?	Understand	CACE007.18
10	Explain various principles underlying building bye-laws.	Remember	CACE007.18
11	Classify the different types of buildings according to NBC?	Remember	CACE007.18
12	State and explain the various basic principles of building planning?	Understand	CACE007.19
13	Distinguish between quarter turn stairs and bifurcated stair?	Understand	CACE007.19
14	What is meant by orientation and state the factors affecting the orientation of building?	Remember	CACE007.19
15	Explain briefly the practical considerations in building planning?	Understand	CACE007.19
16	Explain about i) Service plan ii) Specification for submission of drawing for issue of permission for construction.	Understand	CACE007.20
17	Explain the following terms: i) Floor area ratio ii) Floor space index	Remember	CACE007.20
18	What are the requirements for submission of drawing for issue of permission for construction?	Remember	CACE007.20
19	What are the factors affecting the Earthquake resistant buildings?	Remember	CACE007.20
20	What are the factors to be considered while selecting site for any building construction?	Understand	CACE007.20

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