

University of Mumbai
Examination June 2021

Examinations Commencing from 1st June 2021

Program: **Civil Engineering**

Curriculum Scheme: Rev2019

Examination: SE Semester IV

Course Code: 4and Course Name: Building Materials & Construction Technology

Time: 2-hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following proportion of different ingredients of concrete mix confirm to the arbitrary method of mixing?
Option A:	1:2:5
Option B:	1:3:7
Option C:	1:4:8
Option D:	1:5:9
2.	Insufficient quantity of water
Option A:	Makes the concrete mix smooth
Option B:	Makes the concrete mix unworkable
Option C:	Causes segregation in concrete
Option D:	Causes bleeding in concrete
3.	Le-chatelier is apparatus is used to perform
Option A:	Fineness test
Option B:	Soundness test
Option C:	Consistency test
Option D:	Compressive strength test
4.	When quarrying is to be done in hard stone and compact rocks, the usual method of quarrying is
Option A:	By wedging
Option B:	By channeling machine
Option C:	All of these
Option D:	By blasting
5.	The defect caused due to imperfect seasoning is called,
Option A:	Foxiness
Option B:	Ring gall
Option C:	Knot
Option D:	Heart shake
6.	The compressive strength of the grade M35 on 28 th day is as follows
Option A:	15 N/mm ²

Option B:	20 N/mm ²
Option C:	35 N/mm²
Option D:	40 N/mm ²
7.	The most rational approach of mix proportioning is to select the proportions with specific materials and parameter from trial mixes conducted in laboratory is called
Option A:	Nominal mix concrete
Option B:	Standard mix concrete
Option C:	Design mix concrete
Option D:	Ready mix concrete
8.	Gypsum is added in the manufacture of Portland cement
Option A:	While mixing the raw materials
Option B:	During burning in the rotary kilns
Option C:	At the beginning of grinding the clinker
Option D:	At the end of grinding the clinker into powder
9.	Higher velocities of UPV test indicate
Option A:	Good quality and continuity of the material
Option B:	Bad quality and continuity of the material
Option C:	Concrete with many cracks
Option D:	Concrete with many voids
10.	A first-class brick should have a minimum crushing strength of
Option A:	7 MN/m ²
Option B:	10.5 MN/ m²
Option C:	12.5 MN/m ²
Option D:	14 MN/m ²
11.	The initial setting time is caused due to
Option A:	di-calcium silicate
Option B:	Tri-calcium silicate
Option C:	Tri-calcium aluminate
Option D:	Tri-calcium alumino ferrite
12.	Sloping rafter which makes the hip of a pitched roof is termed as
Option A:	Common rafters
Option B:	Jack rafters
Option C:	Valley rafters
Option D:	Hip rafters
13.	The tiles which is made of small pieces of broken tiles of china glazed or of cement or marble, arranged in different pattern is considered as
Option A:	Shahabad stone tiles
Option B:	Mosaic tiles
Option C:	Kadappa stone tiles
Option D:	Granite stone tiles

14.	Choose the correct decreasing sequence of rate of hydration
Option A:	C3A > C2S > C3S > C4AF
Option B:	C2S > C3S > C3A > C4AF
Option C:	C4AF > C3S > C3A > C2S
Option D:	C3A > C3S > C4AF > C2S
15.	Concrete which is mixed at a central batching plant and transported at the site by a suitable means like belt conveyor, transit mixture, chute is called as
Option A:	Nominal mix concrete
Option B:	Standard mix concrete
Option C:	Design mix concrete
Option D:	Ready mix concrete
16.	Nondestructive tests are applications for detecting flaws?
Option A:	In materials without impairing their usefulness
Option B:	That impair the use of the materials such as pressure testing
Option C:	In material with impairing their usefulness
Option D:	That do not impair the use of the materials such as pressure testing.
17.	Distemper is used on
Option A:	Brick walls
Option B:	Concrete surface
Option C:	Plastered surfaces exposed to weather
Option D:	Plastered surfaces not exposed to weather
18.	Linseed oil in paint is used as a
Option A:	Base
Option B:	Thinner
Option C:	Pigment
Option D:	Carrier
19.	Which of the following statement is correct?
Option A:	Duff Abrams law is valid only when the concrete is of workable plasticity
Option B:	If the water-cement ratio is less, the strength of concrete will be less
Option C:	The strength of concrete decreases with age
Option D:	A rich mix of concrete provides low strength than a lean mix
20.	For compacting plain concrete or one way reinforced concrete floors, the vibrator used is
Option A:	Internal vibrator
Option B:	Screed vibrator
Option C:	Form vibrator
Option D:	No compaction required

Q2 (20 Marks Each)	Solve any Four out of Six	5 marks each
A	Explain the manufacturing process of hollow concrete block	
B	Write a note on Superplasticizer using diagram	

C	Describe the vacuum concreting method
D	Illustrate property Creep and shrinkage of concrete
E	Draw a neat labelled sketch of D.P.C treatment for ground flooring
F	Explain defects in timber due to seasoning of timber

Q3. (20 Marks Each)	Solve any Two Questions out of Three	10 marks each
A	<p>Design a concrete mix for M45 grade of concrete with the following data:</p> <p>Type of cement= OPC 43 grade Maximum size of aggregate=20mm Exposure condition= Severe (RCC) Workability= 125mmslump Minimum cement content=320kg/m³ Maximum W/C ratio=0.45 Method of placing concrete=pumping Degree of supervision=good Type of aggregate=Crushed angular agg. Superplasticizer will be used Sp.gr of coarse aggregate=2.80 Sp.gr of Fine aggregate=2.70 Water absorption= Coarse agg.= 0.5% and Fine aggregate=1.0% Grading of C.A conforming to Table 2of IS 383 Grading of F.A conforming to grading Zone II</p>	
B	Enlist various types of pointing of masonry work and explain Reticulated Finish with neat sketch	
C	State the properties of fresh concrete and explain all of them	