Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering
End Sem Examination Dec 2024
CE3CO05 Construction Material & Techniques

Programme: B.Tech. Branch/Specialisation: CE

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	Which of the following bonds is considered the strongest for brick masonry? (a) English bond (b) Flemish bond (c) Header bond (d) Stretcher bond	**1**	2	5	1	1
	ii.	What is the typical thickness of the mortar joint in brick masonry? (a) 5 mm (b) 10 mm (c) 20 mm (d) 25 mm	**1**	2	5	1	1
	iii.	Which of the following factors most influences the type of foundation used in a building? (a) Number of floors (b) Soil bearing capacity (c) Wall thickness (d) Roof type	**1**	1	5	1	1
	iv.	Which flooring material is most commonly used for industrial floors due to its high strength and durability? (a) Vinyl flooring (b) Epoxy flooring (c) Ceramic tiles (d) Marble	**1**	1	5	1	1
	v.	Which test is commonly used to measure the workability of fresh concrete? (a) Compressive strength test (b) Slump test (c) Split tensile test (d) Flexural strength test	**1**	2	5	2	2

vi.	Which property of hardened concrete is tested using the rebound hammer test? (a) Workability (b) Tensile strength (c) Compressive strength (d) Durability	**1**	2	5	2	2
vii.	Which IS code is used for guidelines on concrete mix design? (a) IS 456-2000 (b) IS 10262-2019 (c) IS 383-1970 (d) IS 2720-1985	**1**	1	5	2	2
viii.	_____ water-cement ratio content to give adequate durability for the particular site conditions. (a) Minimum (b) Maximum (c) Nominal (d) 0.5	**1**	1	7	3	2
ix.	The light-weight concrete is prepared by _____. (a) Mixing Portland cement with sawdust in specified proportion in the concrete (b) Using coke-breeze, cinder or slag as aggregate in the concrete (c) Mixing aluminum in the concrete (d) Mixing steel in the concrete	**1**	1	7	3	2
x.	Fiberglass materials have a usable temperature up to _____. (a) 50 degree Celsius (b) 100 degree Celsius (c) 200 degree Celsius (d) 500 degree Celsius	**1**	2	7	2	2
Q.2 i.	Write down the qualities of good bricks.	**2**	2	5	1	1
ii.	What is plastering and pointing?	**3**	2	5	1	1
iii.	Explain the common types of bonds used in brickwork with suitable diagrams.	**5**	3	5	1	1
OR iv.	Define and explain the terms- (a) Whitewashing and distempering (b) Scaffolding	**5**	3	7	1	1

Q.3 i.	What is bearing capacity of soil?	**2**	2	5	2	2
ii.	Explain causes of failure of foundation and their remedial measures in details.	**8**	3	7	2	2
OR iii.	Explain deep foundation and its types with suitable diagram.	**8**	3	5	2	2
Q.4 i.	What is curing and its various methods?	**3**	2	5	2	2
ii.	Describe bleeding and segregation of concrete. Explain factors affecting them.	**7**	3	7	2	2
OR iii.	Compare different methods for measuring the workability of concrete in the laboratory. Explain any one of them in detail.	**7**	3	5	2	2
Q.5 i.	Write the parameters and factors influencing the mix design.	**4**	2	7	3	2
ii.	Explain Indian standard methods of concrete mix design.	**6**	3	7	2	2
OR iii.	Analyse the stress strain behaviour of concrete and explain in detail.	**6**	4	7	2	2
Q.6	Attempt any two:					
i.	Explain advanced cement-based composites.	**5**	3	7	2	2
ii.	Explain Self compacting concrete.	**5**	3	5	2	2
iii.	Enlist non-destructive test and explain all of them.	**5**	4	7	2	2

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Marking Scheme
CE3CO05 Construction Materials & Techniques

Q.1	i)	A) English bond	**1**
	ii)	B) 10 mm	**1**
	iii)	B) Soil bearing capacity	**1**
	iv)	B Epoxy flooring	**1**
	v)	B Slump test	**1**
	vi)	C. Compressive strength	**1**
	vii)	B. IS 10262-2019	**1**
	viii)	B Maximum	**1**
	ix)	B Using coke-breeze, cinder or slag as aggregate in the concrete	**1**
	x)	C 200 degree Celsius	**1**

Q.2	i.	qualities of good bricks	1 mark each	**2**
	ii.	Plastering	1.5 mark	**3**
		pointing	1.5 mark	
	iii.	types of bonds used in brickwork	3 marks	**5**
		diagrams.	2 marks	
OR	iv.	Define and explain the terms-		**5**
		a. White washing and distempering	2.5 marks	
		b. Scaffolding	2.5 marks	

Q.3	i.	bearing capacity of soil	2 marks	**2**
	ii.	Explain causes of failure of foundation	4 marks	**8**
		remedial measures	4 marks	
OR	iii.	Explain deep foundation	2 marks	**8**
		Each type with suitable diagram.	2 marks each	

Q.4	i.	What is curing	1 mark	**3**
		its various methods.	2 marks	
	ii.	Describe bleeding	1 mark	**7**
		segregation of concrete	1 mark	
		Explain factors affecting them	5 marks	
OR	iii.	Comparison gives	3 marks	**7**
		Explanation gives	4 marks	

Q.5	i.	parameters	2 marks	**4**
		factors influencing the mix design.	2 marks	
	ii.	Explain Indian Standard method of concrete mix design. 6 marks		**6**
OR	iii.	Explanation	4 marks	**6**
		Diagram	2 marks	

Q.6		Attempt any two:		
	i.	Explain advanced cement-based composites.	5 marks	**5**
	ii.	Explain Self compacting concrete	5 marks	**5**
	iii.	Enlist non-destructive test and explain all of them.	5 marks	**5**

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