

Enrollment No.....



Faculty of Engineering
End Sem Examination Dec 2024

CE3EC03 Construction Equipment & Materials

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	CO	PO	PSO
Q.1	i. AAC blocks are known for their:	1	1	3	1	
	(a) High density					
	(b) Low thermal insulation					
	(c) Lightweight					
	(d) High water absorption					
	ii. What is the purpose of pre-stressing tendons in concrete construction?	1	2	3	1	
	(a) Increase workability					
	(b) Improve durability					
	(c) Reduce cracking					
	(d) Enhance compressive strength					
	iii. Which type of admixture is commonly used to improve the workability of concrete?	1	2	3	1	
	(a) Accelerators (b) Retarders					
	(c) Superplasticizers (d) Corrosion inhibitors					
	iv. Which of the following is a common application of aluminium in building construction?	1	2	2	2	
	(a) Roof shingles (b) Window frames					
	(c) Brick veneers (d) Wooden beams					
	v. Which equipment for excavating is typically used for deep excavations and has a large bucket attached to a cable suspended from a boom?	1	2	1	5	
	(a) Dragline (b) Backhoe					
	(c) Power shovel (d) Clamshell					

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vi.	Which of the following is NOT a type of hoisting equipment? (a) Tower crane (b) Mobile crane (c) Forklift (d) Bulldozer	1	2	2	1
vii.	Which of the following is a primary function of a tunnel boring machine (TBM)? (a) Excavation of large diameter shafts (b) Surface grading and levelling (c) Drilling small diameter boreholes (d) Excavation of tunnels underground	1	2	2	1
viii.	Trenching machines are used for: (a) Digging narrow, deep excavations for pipelines or cables (b) Levelling large surfaces for construction (c) Crushing rocks into small fragments (d) Drilling holes for fence posts	1	1	2	5
ix.	Which of the following flooring materials is known for its durability and ease of maintenance? (a) Carpet (b) Hardwood (c) Vinyl (d) Laminate	1	2	3	3
x.	What is the primary purpose of glazing in construction? (a) To provide structural support (b) To enhance thermal insulation (c) To allow natural light into a building (d) To prevent water infiltration	1	1	3	3
Q.2	i. What are the characteristics of well mixed concrete?	2	2	3	1
	ii. Define pre-stressing tendons. Also write down their advantages.	3	1	3	1
	iii. What are the various techniques of concrete mixing? Explain them in detail.	5	2	4	3
OR	iv. Explain in detail about any two latest prevailing building materials with their advantages and disadvantages.	5	2	3	1

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Q.3	i. What are the different types of finishes and treatments in buildings?	2	2	3	5
	ii. Explain the various types of grouting methods with their advantages and disadvantages.	8	2	3	5
OR	iii. Define admixture and adhesives. Explain the various types of admixtures used with construction materials.	8	1	3	5
Q.4	Attempt any two: i. Explain the working of power shovel and backhoe with neat sketch.	5	1	2	3
	ii. Explain the working of mobile cranes and crawler cranes with neat sketch.	5	1	1	3
	iii. Explain the working of sheep foot roller and pneumatic – tyre roller.	5	1	1	3
Q.5	i. Explain the working of tunnel boring machine and its components.	4	1	2	3
	ii. List out the different types of pumps used in dewatering at construction sites. Explain any one of them with its working principle and neat sketch.	6	1	2	3
OR	iii. List out the different types of drilling techniques. Explain any one of them with its working principle and neat sketch.	6	1	2	3
Q.6	Attempt any two: i. Explain plastering and pointing.	5	1	3	1
	ii. Explain the procedure for water proofing over roofs. Also list out the various method of water proofing.	5	1	3	1
	iii. Explain the process of fixing pavers on a ground and list out the types of pavers used for paving works.	5	1	4	1

Marking Scheme

CE3EC03 (T) Construction Equipment & Materials (T)

Q.1	i)	c) Lightweight	1
	ii)	c) Reduce cracking	1
	iii)	c) Superplasticizers	1
	iv)	b) Window frames	1
	v)	a) Dragline	1
	vi)	d) Bulldozer	1
	vii)	b) Surface grading and levelling	1
	viii)	a) Digging narrow, deep excavations for pipelines or cables	1
	ix)	b) Hardwood	1
	x)	c) To allow natural light into a building	1
Q.2	i.	0.5 marks for each characteristic	02
	ii.	Definition/ Explanation – 1.5 marks Advantages – 1.5 marks	03
	iii.	If name of method only – 0.5 marks for each correct name (Max 01 Marks) Name of method with their explanations – 2.5 marks each	05
	OR iv.	Name of Material only – 0.5 marks (Max 01 marks) For correct explanation – 2.5 marks each	05
Q.3	i.	0.5 marks for each correct type	02
	ii.	Names only – 0.5 marks (max 01 marks) Explanations – 02 marks each	08
OR	iii.	Definition only – 01 marks each (max 02 marks) Types of Admixtures (Only name) – 0.5 marks each (max 02 marks) Correct explanation of Admixtures – 02 marks each	08

Q.4	i.	2.5 marks for each explanation	05
	ii.	2.5 marks for each explanation	05
	OR iii.	2.5 marks for each explanation	05
Q.5	i.	Working – 03 marks Names of components only – 0.5 marks each (max 01 marks)	04
	ii.	Names only – 0.5 marks (max 02 marks) Explanations – 04 marks	06
	OR iii.	Names only – 0.5 marks (max 02 marks) Explanations – 04 marks	06
Q.6	i.	2.5 marks each	05
	ii.	For correct procedure – 03 marks For methods – 0.5 marks (max 02 marks)	05
	iii.	For correct procedure – 03 marks For types – 0.5 marks (max 02 marks)	05
