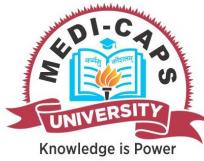


Enrollment No.....



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	<b>1</b>	1	3	1	
i. AAC blocks are known for their:					
(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?	<b>1</b>	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?	<b>1</b>	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?	<b>1</b>	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?	<b>1</b>	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
- 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
- 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
- ix. Which of the following flooring materials is known for its durability and ease of maintenance?  
 (a) Carpet              (b) Hardwood  
 (c) Vinyl                (d) Laminate
- 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
- Q.2**
- i. What are the characteristics of well mixed concrete?
  - ii. Define pre-stressing tendons. Also write down their advantages.
  - iii. What are the various techniques of concrete mixing? Explain them in detail.
- OR**
- iv. Explain in detail about any two latest prevailing building materials with their advantages and disadvantages.
- |  |          |   |   |   |
|--|----------|---|---|---|
|  | <b>1</b> | 2 | 2 | 1 |
|  | <b>1</b> | 2 | 2 | 1 |
|  | <b>1</b> | 1 | 2 | 5 |
|  | <b>1</b> | 2 | 3 | 3 |
|  | <b>1</b> | 1 | 3 | 3 |
|  | <b>2</b> | 2 | 3 | 1 |
|  | <b>3</b> | 1 | 3 | 1 |
|  | <b>5</b> | 2 | 4 | 3 |
|  | <b>5</b> | 2 | 3 | 1 |

[3]

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

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## Marking Scheme

CE3EC03 (T) Construction Equipment & Materials (T)			
Q.1	i) c) Lightweight ii) c) Reduce cracking iii) c) Superplasticizers iv) b) Window frames v) a) Dragline vi) d) Bulldozer vii) b) Surface grading and levelling viii) a) Digging narrow, deep excavations for pipelines or cables ix) b) Hardwood x) c) To allow natural light into a building	1 1 1 1 1 1 1 1 1 1	
Q.2	i. 0.5 marks for each characteristic ii. Definition/ Explanation – 1.5 marks Advantages – 1.5 marks 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	02 03 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 ii. Names only – 0.5 marks (max 01 marks) Explanations – 02 marks each	02 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 ii. 2.5 marks for each explanation OR iii. 2.5 marks for each explanation	05 05 05
	Q.5	i. Working – 03 marks Names of components only – 0.5 marks each (max 01 marks) ii. Names only – 0.5 marks (max 02 marks) Explanations – 04 marks OR iii. Names only – 0.5 marks (max 02 marks) Explanations – 04 marks	04 06 06
	Q.6	i. 2.5 marks each ii. For correct procedure – 03 marks For methods – 0.5 marks (max 02 marks) iii. For correct procedure – 03 marks For types – 0.5 marks (max 02 marks)	05 05 05
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