

Total No. of Questions: 6

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Enrollment No.....



Faculty of Engineering  
End Sem (Odd) Examination Dec-2017  
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.

- Q.1 i. In fineness test of cement, the residue left on IS sieve no. 9 should not be more than **1**
- (a) 1% (b) 10%  
(c) 5% (d) None of these
- ii. Admixtures could be used to **1**
- (a) Accelerate initial setting time  
(b) Increase the strength of concrete  
(c) Improve workability  
(d) Any of the above
- iii. The durability of concrete is proportional to **1**
- (a) Sand content (b) Water - Cement ratio  
(c) Cement - aggregate ratio (d) Aggregate -Water ratio
- iv. Higher permeability of concrete is due to **1**
- (a) Long term drying (b) Poor compaction  
(c) Thermal stresses (d) All of these
- v. For a given environment the most significant factor that influences the total shrinkage of concrete is **1**
- (a) Cement content of mix.  
(b) Total amount of water added at the time of mixing.  
(c) Size of the member concreted.  
(d) Maximum size of coarse aggregate used.
- vi. Maximum size of coarse aggregate in concrete mix for RCC work is **1**
- (a) 10 mm (b) 20 mm  
(c) 15 mm (d) 25 mm

P.T.O.

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- vii. The frog of the brick in a brick masonry is generally kept on **1**  
(a) Top face (b) Bottom face  
(c) Shorter side (d) Longer Side
- viii. A first-class brick when immersed in cold water for 24 hours **1**  
should not absorb water more than  
(a) 15% (b) 20%  
(c) 22% (d) 25%
- ix. Equipment used for the excavation of hard rock **1**  
(a) Crushers (b) Graders  
(c) Dragline (d) Power Shovel
- x. Machinery used for earth compaction is: **1**  
(a) Sheep foot roller (b) Clam Shell  
(c) Showel (d) Back hoe
- Q.2 i. Explain admixtures and plasticizers with their examples. **2**  
ii. Explain heat of hydration of cement. **3**  
iii. Enlist the different types of cement. Explain any 3 in detail. **5**
- OR iv. Explain: **5**  
(a) Ready Mix Concrete  
(b) Fiber Reinforced Concrete
- Q.3 i. Explain effect of temperature on concrete. **2**  
ii. Explain workability of concrete with various factors affecting **8**  
workability of concrete and method of measurement.
- OR iii. Enlist the various methods of testing of concrete. Explain any 3 **8**  
in detail.
- Q.4 i. What are the various provisions of IS Code for sound concrete. **3**  
ii. Enlist the various methods of concrete mix design and explain **7**  
IS Code method in brief.
- OR iii. What are the basic considerations and factors influencing the **7**  
choice of mix design? Explain them briefly.

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- Q.5 i. Differentiate between: **4**  
(a) Plastering and pointing  
(b) Stone masonry and brick masonry
- ii. Name various types of bonds in brick masonry. Compare **6**  
English Bond and Flemish Bond.
- OR iii. Explain dressing of stone. Enlist the various tools used for stone **6**  
masonry with their uses.
- Q.6 Attempt any two:
- i. Explain power shovel with advantages and factors affecting **5**  
output of power shovel.
- ii. Write a short note on conveying belt and grading equipment. **5**
- iii. Name all common construction and excavation equipments. **5**  
Explain hoisting equipments.

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**CE3CO05 Construction Material & Techniques**  
**Marking Scheme**

Q.1	i.	(b) 10%	<b>1</b>
	ii.	(d) Any of the above	<b>1</b>
	iii.	(c) Cement -aggregate ratio	<b>1</b>
	iv.	(d) All of these	<b>1</b>
	v.	(b) Total amount of water added at the time of mixing	<b>1</b>
	vi.	(d) 25 mm	<b>1</b>
	vii.	(a) Top face	<b>1</b>
	viii.	(b) 20%	<b>1</b>
	ix.	(d) Power shovel	<b>1</b>
	x.	(a) Sheep foot roller	<b>1</b>
Q.2	i.	Give 1 mark for admixture briefing and 1 mark for plasticizer briefing.	<b>2</b>
	ii.	For briefing Heat of hydration give 1 mark for at least 2 points	<b>3</b>
	iii.	For 10 cement name give 2 marks and for explanation of each type of cement give 1 mark	<b>5</b>
OR	iv.	For explanation of RMC give 2 marks and for explanation of Fibre reinforced concrete give 2 marks	<b>5</b>
Q.3	i.	For explanation 1 mark is allotted for at least 2 points.	<b>2</b>
	ii.	For definition of workability give 2 marks. For name of factors affecting workability give 2 marks For factors affecting workability explanation give 4 marks	<b>8</b>
OR	iii.	For Testing of concrete method named 2 marks. For explanation of each method give 2 marks.	<b>8</b>
Q.4	i.	Give 1 mark for at least 2 points.	<b>3</b>
	ii.	For Mix design methods name give 2 marks. For Mix design method briefing give 5 marks. .	<b>7</b>
OR	iii.	For mix design consideration explanation give 3 marks. For explanation of factors influencing mix design give 4 marks.	<b>7</b>
Q.5	i.	Give at least 1 mark for 2 comparison	<b>4</b>
	ii.	Name of bonds types in brick masonry 2 marks. Comparison of bonds give 1 mark for atleast 2 comparison	<b>6</b>

OR	iii.	Definition of dressing of stone 2 marks. For tools used in stone masonry written give 2 marks. For uses of tools written 2 marks are allotted.	<b>6</b>
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Q.6		Attempt any two:	
	i.	If explained power shovel briefly with advantages and factors affecting working efficiency allot 5 marks.	<b>5</b>
	ii.	If explained briefly give at least 1 mark for 2 points	<b>5</b>
	iii.	Names of equipment written give 3 marks. For description of Hoisting equipment written give 2 marks	<b>5</b>

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