



Enrollment No.....

Faculty of Engineering
End Sem (Even) Examination May-2019
CE3EL04 Building Maintenance & Repairs

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. To control corrosion, the concrete should have **1**
 (a) Low Permeability (b) Low thermal coefficient
 (c) More cement content (d) More coarse aggregate content
- ii. How many types of cracks can occur in a building **1**
 (a) 3 (b) 4 (c) 2 (d) 6
- iii. Creep in concrete structures increases with **1**
 (a) Increase in humidity (b) Increase in water content
 (c) Decrease in temperature (d) Decrease in humidity
- iv. Which IS code give details about termite proofing **1**
 (a) IS 6835 (b) IS 6313 (c) IS 5886 (d) IS 5668
- v. Which of the following cement is used to neutralize the shrinkage effect? **1**
 (a) Expansive cement (b) Hydrophobic cement
 (c) OPC (d) PPC
- vi. The main reason for crack in masonry joint is **1**
 (a) Moisture (b) Sulphate (c) Magnesium (d) Sodium
- vii. Shear cracks between main wall and cross wall can be corrected using **1**
 (a) Grouting (b) Rebuilding (c) Gunning (d) Toothing
- viii. Desiccants are chemicals that **1**
 (a) Add humidity (b) Remove humidity
 (c) Add moisture (d) Remove moisture
- ix. The demolition of structure with the help of explosive is called **1**
 (a) Implosion (b) Hammering
 (c) Bursting (d) Heating

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- x. One of the oldest and most commonly used methods for building demolition **1**
 (a) Explosive (b) Pressure bursting
 (c) Ball and crane (d) None of these
- Q.2 i. Differentiate between serviceability and durability of a building structure. **2**
 ii. Enlist the various factors which may affect the serviceability and durability of a structure. Explain any two in detail. **8**
- OR iii. Define corrosion. Explain the mechanism of corrosion in detail. **8**
- Q.3 i. Explain in brief "Rehabilitation". **2**
 ii. Explain in detail the assessment process for evaluating the damaged structure. **8**
- OR iii. Define deterioration. Explain in detail various causes of deterioration. **8**
- Q.4 i. Write any two uses of expansive cement. **2**
 ii. Explain sulphur infiltrated concrete under following heads **8**
 (a) Ingredients (b) Usage
 (c) Advantages (d) Disadvantages
- OR iii. Write a detailed note on Ferro Cement & Polymer Concrete. **8**
- Q.5 Attempt any two:
 i. Explain with example the various repair techniques to overcome chemical disruption. **5**
 ii. Explain the repair techniques to overcome the problem of (a) Deflection (b) Cracking. **5**
 iii. Explain the repair techniques to resolve the problem of (a) Leakage (b) Marine exposure **5**
- Q.6 Attempt any two:
 i. Explain the various steps that should be taken before the process of demolition. **5**
 ii. Explain in detail the non-explosive method of demolition. **5**
 iii. Write a note on engineered demolition technique for dilapidated structures. **5**

Marking Scheme
CE3EL04 Building Maintenance & Repairs

Q.1	i.	To control corrosion, the concrete should have	1
		(a) Low Permeability	
	ii.	How many types of cracks can occur in a building	1
		(c) 2	
	iii.	Creep in concrete structures increases with	1
		(c) Decrease in temperature	
	iv.	Which IS code give details about termite proofing	1
		(b) IS 6313	
	v.	Which of the following cement is used to neutralize the shrinkage effect?	1
		(a) Expansive cement	
Q.2	vi.	The main reason for crack in masonry joint is	1
		(b) Sulphate	
	vii.	Shear cracks between main wall and cross wall can be corrected using	1
		(d) Toothing	
	viii.	Desiccants are chemicals that	1
		(d) Remove moisture	
	ix.	The demolition of structure with the help of explosive is called	1
		(a) Implosion	
	x.	One of the oldest and most commonly used methods for building demolition	1
		(c) Ball and crane	
OR	i.	Differentiate between serviceability and durability of a building structure.	2
		Each definition 1 mark (1 mark * 2)	
	ii.	Factors which may affect the serviceability and durability of a structure.	8
		Name of factors 2 marks	
		Explanation of any two factor 2 marks each 6 marks	
Q.3	iii.	Definition of corrosion	2 marks
		Mechanism of corrosion	6 marks
Q.3	i.	Rehabilitation	2
		Definition and brief description	
	ii.	Assessment process for evaluating the damaged structure.	8
		As per explanation	

OR	iii.	Definition of deterioration	1 mark	8
		Name of various causes	2 marks	
		Explanation of causes of deterioration.	5 marks	
Q.4	i.	Any two uses of expansive cement.		2
		1 mark for each use (1 mark * 2)		
	ii.	Explain sulphur infiltrated concrete under following heads		8
		(a) Ingredients	2 marks	
		(b) Usage	2 marks	
		(c) Advantages	2 marks	
OR		(d) Disadvantages	2 marks	
	iii.	Ferro Cement	4 marks	8
		Polymer Concrete.	4 marks	
Q.5		Attempt any two:		5
	i.	At least five repair techniques to overcome chemical disruption.		
		1 mark for each (1 mark * 5)		5
	ii.	Explain the repair techniques to overcome the problem of		
		(a) Deflection	2.5 marks	5
		(b) Cracking	2.5 marks	
	iii.	Explain the repair techniques to resolve the problem of		5
Q.6		(a) Leakage	2.5 marks	
		(b) Marine exposure	2.5 marks	
		Attempt any two:		5
	i.	Steps that should be taken before the process of demolition.		
		1 mark for each step (1 mark * 5)		5
	ii.	Non-explosive method of demolition		
		Concept	2 marks	5
		Explanation	3 marks.	
	iii.	Engineered demolition technique for dilapidated structures		5
		As per the explanation		
