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

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

CE3EC07 Construction Safety & Management

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. Which of the following cracks is developed when both shear tension and flexural tension is high? **1**

(a) Vertical Crack + Diagonal Crack
(b) Only Diagonal Cracks
(c) Horizontal Cracks + Diagonal Cracks
(d) None of these

ii. Which of the following is the first step of planning of safety? **1**

(a) Articulate Mission and Vision
(b) Develop a work plan
(c) Assess the current situation
(d) None of these

iii. Which of the following operation is done in order to counteract side collapse? **1**

(a) Grouting (b) Shoring
(c) Compaction (d) All of these

iv. Which of the following factor affects safety in excavation work? **1**

(a) Volume of pit (b) Nature of the soil
(c) Position of water table (d) All of these

v. Which of the following is the second phase of construction project? **1**

(a) Planning phase (b) Execution phase
(c) Initiation phase (d) Closing phase

vi. Dozer is fall under – **1**

(a) Hoisting equipment (b) Excavating equipment
(c) Hauling equipment (d) All of these

P.T.O.

vii. The quality accreditation in QMS is given by **1**
(a) ISO 8001 (b) IS 8760 (c) ISO 9001 (d) IS 9247

viii. Which of the following factor is needed for the success of Zero Accident Vision? **1**
(a) Management commitment
(b) Workers participation
(c) Workers Training
(d) All of these

ix. The relation b/w probability of failure and reliability is given by- **1**
(a) F(t) = R(t) – 1.0 (b) F(t) = 1.0 – R(t)
(c) F(t) = R(t)+1.0 (d) None of these

x. A safety programme consists of- **1**
(a) Three E's (b) Four E's (c) Five E's (d) Six E's

Q.2 i. Explain various factors affecting safety in construction project. **4**

ii. Discuss design strategy required for cracks control and local damages in construction. **6**

OR iii. Explain behaviour of Reinforced concrete members under different load conditions in detail. **6**

Q.3 i. A company has 27 full-time employees who work 40 hours per week. If the company experienced 3 recordable injuries. Determine Accident frequency rate of the company. **4**

ii. Explain safety procedures taken during demolition work in detail. **6**

OR iii. Explain various safety measures needed in Concreting work in detail. **6**

Q.4 Attempt any two:

i. Explain construction project management and its principles. Also describe the life cycle of construction project in detail. **5**

ii. Enlist various excavating equipment. Explain any one equipment with neat sketch diagram. **5**

iii. Enlist various compacting equipment. Explain any two compacting equipment in detail. **5**

Q.5 Attempt any two:

i. Explain applications of QMS in detail. **5**

ii. Explain the role of ergonomics in occupational health. **5**

iii. Explain various points considered in preparing reports of accident. **5**

Q.6 i. Write short note on Disaster management at construction sites. **4**

ii. Explain Probability density and Hazard rate function with the help of graphical representation. **6**

OR iii. Explain various safety factors needed while working at height. Also describe safety rules for handling and operating lifting machinery. **6**

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Marking Scheme
CE3EC07 Construction Safety & Management

Q.1	i.	Which of the following cracks is developed when both shear tension and flexural tension is high? (a) Vertical Crack + Diagonal	**1**
	ii.	Which of the following is the first step of planning of safety? (b) Develop a work plan	**1**
	iii.	Which of the following operation is done in order to counteract side collapse? (b) Shoring	**1**
	iv.	Which of the following factor affects safety in excavation work? (d) All of these	**1**
	v.	Which of the following is the second phase of construction project? (a) Planning phase	**1**
	vi.	Dozer is fall under – (c) Hauling equipment	**1**
	vii.	The quality accreditation in QMS is given by (c) ISO 9001	**1**
	viii.	Which of the following factor is needed for the success of Zero Accident Vision? (d) All of these	**1**
	ix.	The relation b/w probability of failure and reliability is given by- (b) F(t) = 1.0 – R(t)	**1**
	x.	A safety programme consists of- (c) Five E's	**1**
Q.2	i.	Factors affecting safety in construction project 1 mark for each factor (1 mark * 4)	**4**
	ii.	Design strategy required for cracks control and local damages in construction. 1 mark for each design strategy (1 mark * 6)	**6**
OR	iii.	Proper explanation with behaviour of RCC members Any two 3 marks for each (3 marks *2)	**6**
Q.3	i.	Formula for Accident frequency rate 1 mark Correct solution AFR = 53.41 3 marks	**4**
	ii.	Proper explanation with safety procedures Any two procedures 3 marks for each (3 marks * 2)	**6**
OR	iii.	Proper explanation with safety measures Any six measures 1 mark for each (1 marks * 6)	**6**
Q.4		Attempt any two:	
	i.	Construction project management and principles 1 mark Life cycle of construction project 4 marks	**5**
	ii.	Four names of excavating equipment 1 mark Explanation of any one equipment 3 marks Diagram 1 mark	**5**
	iii.	Four names of compacting equipment 1 mark Explanation of any two compacting equipment 2 marks for each equipment (2 marks * 2) 4 marks	**5**
Q.5		Attempt any two:	
	i.	At least five applications of QMS 1 mark for each application (1 marks * 5)	**5**
	ii.	At least five roles of ergonomics in occupational health 1 mark for each role (1 marks * 5)	**5**
	iii.	Preparing reports of accident As per the explanation	**5**
Q.6	i.	Disaster management at construction sites As per the explanation	**4**
	ii.	Probability density function 2 marks Graphical representation 1 mark Hazard rate function 2 marks Graphical representation 1 mark	**6**
OR	iii.	Safety factors needed while working at height 3 marks Safety rules for handling and operating lifting machinery 3 marks	**6**

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