

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. - SEMESTER – VIII EXAMINATION – OCTOBER 2012****Subject code: 180607****Date: 25/10/2012****Subject Name: Repairs and Rehabilitation of Structures****Time: 02.30pm - 05.00pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Answer the following 14

- (a) Temperature at which sulfur is brought to molten state by heating it around _____ °C.
- (b) The Sulphur-infiltrated concrete has very _____ low resistance to freezing and thawing.
- (c) Fibers which are used in fiber reinforced concrete can broadly be classified as _____ and _____
- (d) Normal range of volume of PPF in concrete is _____ to _____ %
- (e) In general, vacuum suction is effective upto _____ mm depth.
- (f) FRC improves a. _____ and b. _____
- (g) Main cause of cracks during fresh stage of concrete is _____
- (h) _____ is used for repairing live cracks.
- (i) The polymer modified mortar has very _____ resistance to fire.
- (j) Corrosion of steel takes place due to (a) _____ (b) _____ changes.
- (k) In electrochemical mechanism of corrosion, electron moves through _____ and hydroxyl ions moves through _____
- (l) The brand name of PTFE is _____ and is commonly used in coating utensils.
- (m) In case of RCC, protection of steel against corrosion is commonly accounted by providing _____
- (n) Epoxy have essentially two parts (a) _____ (b) _____

Q.2 (a) Define durability of concrete and explain the major causes of inadequate durability. 07**(b) Describe coefficient of permeability and coefficient of diffusion How do they effect the mechanism of transportation of fluid through concrete. 07****OR****(b) What do you understand by corrosion? Explain mechanism by which steel corrodes in concrete. 07****Q.3 (a) What is meant by carbonation of concrete? How it is determined in concrete? What are the limitations associated with it? 07****(b) What are the different means of chloride ingress in concrete? How does it affect the concrete properties? 07****OR**

- Q.3 (a)** Explain the structural defects and its causes in a masonry building. How can they be prevented? **07**
- (b)** Explain the methodology to repair a earthquake deficient masonry structure. **07**
- Q.4 (a)** State the reasons of deterioration of reinforced concrete buildings. Explain preventive measures during concreting and during its usage. **07**
- (b)** Differentiate between retrofitting and rehabilitation of structure. **07**
- OR**
- Q.4 (a)** List the materials which can be used as laminate for an existing reinforced concrete beam. What are the preliminary requirements of laminate attachment? **07**
- (b)** Explain complete process of concrete guiniting. In which conditions guiniting is preferred over jacketing?
- Q.5** Write a short note on (any three) **14**
- (a)** Ferrocement
 - (b)** Fiber reinforced concrete
 - (c)** Vacuum concrete
 - (d)** Superplasticizer
 - (e)** Health monitoring techniques
 - (f)** Techniques applied for condition assessment of structures
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