

**M. E. CONSTRUCTION ENGINEERING 2<sup>ND</sup> YEAR 1<sup>ST</sup> SEM EXAM - 2024****SUBJECT: Repair and Retrofitting Technique-I****Part 1****Full Marks : 100**

Question No.		Marks
	<b>Answer any four questions</b>	
Q1.	Explain the 'ring anode' or 'Halo effect'. Also discuss the repair technique to minimize its effect.	12.5
Q2.	Discuss the following. i) Remedial underpinning ii) Precautionary underpinning iii) Raking shore iv) Flying Shore v) Dead Shore	02 02 03 2.5 03
Q3.	i) What are the purposes of applying protective coating to structures? ii) What are the different functional requirement of coating on reinforced concrete? iii) Briefly describe the following a) Epoxy coating      b) Zinc coating	2.5 05 05
Q4.	i) State the importance of surface preparation in repair of concrete structure. ii) Describe the method of surface preparation of concrete by sand blasting and shot blasting.	3.5 09
Q5.	Write short notes on the following i) Micro concrete ii) Polymer modified mortar iii) Criteria for selection of repair material	03 03 6.5
Q6.	i) What are the different methods of roof waterproofing? ii) Discuss the method of waterproofing with APP membrane.	2.5 10

**M.E. Construction Engineering - Second Year - First Semester, 2024****SUBJECT: Repair and Retrofitting Technique-I**

Time :

Full Marks 50

No of Questions	Part II	Marks
	Answer All questions.	
Q1)	Draw a sketch of RCC jacketing of RCC column when only two sides are available for jacketing. Size of the existing column is 400x400 mm and reinforcement to be used for jacketed portion is 8 nos. of 12 mm diameter as longitudinal reinforcement. You have to clearly show the proper stirrup reinforcement with 8 mm diameter @ 200 mm c/c . Please also note that thickness of jacketing is 100 mm.	15
Q2)	Draw a sketch and explain showing different types of beam jacketing strengthening technique proposed	10
Q3)	Why Carbon Fiber Reinforced Polymer technique strengthening process is more acceptable/ applicable in some cases of repair technique. CFRP is a CONTACT CRITICAL Technique of Strengthening: explain this statement with proper logic .	10
Q4.a)	Briefly describe plate bonding technique with neat sketch.	5
Q4.b)	Why certain level of roughening of steel plate is a very important criteria for plate bonding. What is the magnitude of roughness of steel plate.	5
Q4.c)	Why plate bonding is passive type strengthening technique.	5