

B. E. CONSTRUCTION ENGINEERING 4TH YEAR 2ND SEMESTER - 2024**SUBJECT: Repair and Rehabilitation and Maintenance of structure**

Time Three Hours

(50 Marks for each Part)

Full Marks : 100

Use separate answer script for each Part

PART I (50 Marks)

	Question No.	Answer any <i>five</i> questions	Marks
CO1 [10]	Q1a.	Define the following i) Repair ii) Protection iii) Strengthening	05
	Q1b.	Discuss the different causes of distress and their effects on structures.	05
CO2 [10]		Answer any one from question (2) and question (3) in this block	
	Q2.	Explain the carbonation and its effect on concrete structures. How the depth of carbonation is assessed ?	10
	Q3.	Write a short note on alkali aggregate reaction in concrete	10
CO4 [20]		Answer any two from question (4), question (5), question (6) and question (7) in this block	
	Q4a.	Describe the "Dry Mix" process of shotcreting.	05
	Q4b.	Write a short note on rebound in case of shotcreting.	05
	Q5.	Describe the method of surface preparation by sand blasting and shot blasting.	10
	Q6.	Describe the use of the following i) Anticorrosive paint on reinforcement ii) Use of rust removing chemicals iii) Micro-concrete	2.5 2.5 05
	Q7a.	What are the different methods of waterproofing of roof ?	04
	Q7b.	Describe any one of the water proofing method.	06
CO5 [10]	Q8a.	Explain the following i) Remedial underpinning ii) Precautionary underpinning	05
	Q8b.	Write a short note on use of raking shores	05

B. Construction Engineering 4th Year 2nd Semester Examination 2024

REPAIR, REHABILITATION & MAINTENANCE OF STRUCTURE

Part II

Use **Separate Answer Script** for Each Part

Answer should be to the point of any Two Questions. Maximum Marks is 50

No Codes are allowed

1. a) What are the different **information** to be collected during **site visit** for the **seismic evaluation** of Reinforced concrete building structures? 8
- b) What are the different **configuration related checks** to be made for the **seismic evaluation** of Reinforced concrete building structures. 7
- c) Discuss on **Strength-Related** checks under **preliminary evaluation** for RCC frame under seismic demand ? 10
- [CO4]
2. a) Distinguish between **Repair, Rehabilitation and Retrofit** of Structures. 5
- b) What are the **different Non-destructive** tests and their primary objectives 7
- c) Discuss on the Principle, Objective and Calibration of **Schmidt Hammer Test** in Concrete. How the reliability of Schmidt Hammer test can be improved ? 8
- d) Discuss the effect of **Carbonation & Moisture Content** on Hammer test result 5
- [CO1 & CO2]
3. a) Mention the common **Faulty Workmanship in concrete construction** 5
- b) What are the Objective and Principle of **Ultrasonic pulse velocity test** in concrete 5
- c) Discuss **different types of Ultrasonic Pulse Velocity Test** 4
- c) Discuss the effect of **Close presence of Reinforcement** on the UPV test result 3.
- d) How do you calculate the **Dynamic Modulus of Concrete** from Ultrasonic Pulse Velocity in Concrete? 4
- e) Discuss on **the Limitations of Non-Destructive Test** in concrete. 4
- [CO3]