

**B. E. CONSTRUCTION ENGINEERING 4<sup>TH</sup> YEAR 2<sup>ND</sup> SEMESTER**  
**SUPPLEMENTARY EXAMINATION- 2024**

**SUBJECT: Repair and Rehabilitation and Maintenance of structure**

Time Three Hours

Full Marks : 100

**Part I (50 Marks)**

	Question No.		Marks
<b>CO1</b> <b>[10]</b>		<b>Answer any one from question (1) and question (2) in this block</b>	
	Q1.	Briefly discuss the different factors that influences the selection of repair materials.	10
	Q2.	Discuss the different causes of distress and their effects on structures.	10
<b>CO2</b> <b>[10]</b>		<b>Answer any one from question (3) and question (4) in this block</b>	
	Q3.	Write a short note on corrosion and its effect on concrete structures.	10
	Q4.	Write a short note on Sulphate Attack on concrete.	10
<b>CO4</b> <b>[20]</b>		<b>Answer any two from question (5), question (6), question (7) and question (8) in this block</b>	
	Q5a.	Describe the "Wet Mix" process of shotcreting.	05
	Q5b.	Discuss the application of shotcrete in repair as well as in new construction.	05
	Q6.	State the importance of surface preparation in repair of concrete structure.  Describe the method of surface preparation by sand blasting and shot blasting.	10
	Q7a.	Explain how the plastic shrinkage crack develops.	10
	Q7b.	What are the different measures that can be adopted to avoid plastic shrinkage crack?	
	Q8a.	What are the different methods of waterproofing of roof ?	03
	Q8b.	Write a short note on application of APP membrane	07
<b>CO5</b> <b>[10]</b>		<b>Answer any one from question (9) and question (10) in this block</b>	
	Q9.	Describe the process of underpinning by continuous strip foundation.	10
	Q10.	Write a short note on use of different types of shores	10

[ Turn over

Ref : Ex/CON/PE/B/T/422A/2024(S)

**B. Construction Engineering 4<sup>th</sup> Year 2<sup>nd</sup> Semester Supplementary 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) Discuss the **Principle, Objective and Procedure** of **Schmidt Hammer Test** of Concrete. How the Site specific **Calibration** of Schmidt Hammer can be made ? 12  
b) Discuss the effect of **Carbonation & Moisture Content** on Hammer test result 7  
c) Discuss on the **Advantages & Limitations of Non-Destructive Test** in concrete. 6  
[CO1 & CO2]
  
2. a) What are significance of Condition Assessment and Repair of structures ? 5  
b) What are the Objective and Principle of **Ultrasonic pulse velocity test** in concrete 5  
c) Discuss on the **Dynamic Modulus of Concrete** from Ultrasonic Pulse Velocity . 5  
d) Discuss **different types** of **Ultrasonic Pulse Velocity Test** and their application 5  
e) Discuss the effect of **Moisture content & Reinforcement presence** on UPV test 5  
[CO3]
  
3. a) What are the different **Faulty Workmanship** in **Concrete Construction** ? 7  
b) Mention Four different **Non-destructive** tests and their specific objectives. 8  
c) Discuss on **Strength-Related** checks under **preliminary evaluation** for RCC frame under **seismic demand** ? 10  
[CO3 & CO4]