	Sanjay Ghodawat University, Kolhapur Established as State Private University under Govt. of Maharashtra. Act No XL, 2017	2019-20 EXM/P/09/01

Year and Program:2019-20	**School of Technology**	**Department of Civil Engineering M. Tech. Structural Engineering**
Course Code: CES517R1	**Course Title: Repair and Rehabilitation of Concrete Structures**	**Semester – I**
Day and Date- Monday 23/12/19	**End Semester Examination (ESE)**	**Time:** 4hr 10.30am to 2.30 **Max. Marks: 100**

Instructions:
1) All questions are compulsory.
2) assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

			Marks	Bloom's Level	CO
Q.1	a)	**Explain** settlement cracks? What are the factors affecting the settlement cracks?	08	L_4	CO1
	b)	**Explain** the effects on concrete structures of freezing and thawing and identify the remedial measures for the same.	10	L_5	CO1
Q.2	a)	**Conclude** 'corrosion of reinforcement is the most cause of deterioration of the structure'	08	L_4	CO2
	b)	**Choose** the best technique to prevent corrosion of reinforcement?	08	L_5	CO2
Q.3	a)	Why 'ultrasonic pulse velocity' test and 'rebound hammer' are generally used together. **Explain** their respective principles and limitation, along with interpretation of results.	08	L_5	CO3
	b)	How can ' distress, through visual observations and ' Fast ' methods, be **investigated** and **evaluated** in construction?	08	L_6	CO3
Q.4	a)	**Explain** the special elements used for accelerated strength gain?	08	L_5	CO3
	b)	**What** are the organic polymers used to make the special concrete and mortars suitable for repair work?	08	L_3	
Q.5		**Discuss** any four techniques of strengthening of existing concrete structures	16	L_4	CO4

OR

ESE

	Explain leak sealing with the various methods of leak sealing?	16	L_4	CO4
Q.6	**Describe** the process of rebar corrosion in concrete. Also **discuss** the various techniques of its corrosion protection.	16	L_5	CO4
	OR			
	Justify under what circumstances epoxy injection method is used? Explain with suitable examples.	16	L_5	CO4