Ref. No. EX/PG/CT/T/112/2024

M. E. CONSTRUCTION ENGINEERING FIRST YEAR FIRST SEMESTER - 2024

SUBJECT: Repair materials for masonry and concrete structures

Time : Three Hours **Full Marks : 100**

(50 marks for each Part)
(Use sepatate Answer Script for each Part)
PART I (50 Marks)

Question No.		Marks
	Answer any four questions	
Q1.	Discuss the different factors that affect the durability of concrete.	12.5
Q2a.	A high range water reducing admixture is used in production of a flowable concrete. The relevant date are as follows Dosage of solid = 0.6% Cement content = 400 kg/m^3 Solid content = 30% Specific gravity of the water reducing admixture = 1.1 What is the volume of water that will be introduced into concrete due to the use of this admixture?	3
Q2b.	Describe slump flow tests. What are the different parameters measured in slump flow test? How these parameters are linked with performance of SCC?	9.5
Q3.	Write a short note on fly-ash based concrete.	12.5
Q4a.	Explain the reasons behind non-linearity in stress strain relation of concrete.	9.5
Q4b.	Explain the following i) Latex ii) Minimum film forming temperature	3
Q5a.	What are the advantage of using mineral admixture in concrete ?	7.5
Q5b.	Briefly discuss the balling effect in fibre reinforced concrete?	5
Q6.	Write a short note on water reducing and high range water reducing admixtures.	12.5

Ref. No. EX/PG/CT/T/112/2024

M. E. CONSTRUCTION ENGINEERING FIRST YEAR FIRST SEMESTER - 2024

SUBJECT: Repair materials for masonry and concrete structures

Time : Three Hours **Full Marks : 100**

(50 marks for each Part)
(Use sepatate Answer Script for each Part)

PART II (50 Marks)

Answer any two questions.

Q-1. (a) Explain the objective of using RAP in road pavement repair works. (5)

(b) Explain the advantages and limitations of in plant and in site recycling process. (10)

© Discuss the significance of CMA in bituminous road repair. (10)

Q-2 (a) Explain with justifications that which type of lime is useful for repair of historic brick masonry structure ? (8)

(b) Define lime Putty . Where it is used ? (5)

© Explain why hydraulic lime sets under water. Draw the lime cycle diagram for hydralic lime. (12)

Q-3. (a) Explain different types of grout for soil and rock grouting . (8)

(b) Explain with reasons that which type of paver blocks are considered to be a better alternative for patch repair of heavy duty roads on weak subgrade. ? (10)

© Classify the mortars based on strength as recommended in ASTM . (7)