

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-III Remedial Examination May 2011****Subject code: 130605****Date: 20-05-2011****Subject Name: Concrete Technology****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** State the steps involved in the manufacture of concrete and describe compaction in detail **05**
- (b)** Define workability. State the factors affecting the workability and describe any one in detail **05**
- (c)** State the major compounds of the OPC and importance of them. **04**
- Q.2 (a)** Design concrete mix according to IS:10262 - 1982 recommended guide lines by weight and volume for the following design stipulations. **07**
1. Characteristic compressive strength required at 28 days = 30 N/mm^2
 2. Maximum size of the aggregates = 20mm (angular).
 3. Degree of workability = 0.8 CF.
 4. Degree of quality control = good.
 5. Exposure = mild and water cement ratio = 0.47.
 6. Cement used OPC 53 grade.
 7. Specific gravity of cement, coarse aggregate and fine aggregate are 3.15, 2.6 and 2.6 respectively.
 8. Water absorption of coarse aggregate and fine aggregate are 0.5% and 1% respectively.
 9. Free (surface) moisture in coarse aggregate and fine aggregate are nil and 2% respectively
 10. Sand of zone III
 11. Bulk density of cement, coarse aggregate and fine aggregate are 1440 kg/m^3 , 1600 kg/m^3 and 1800 kg/m^3 respectively.
 12. Standard deviation is assumed to be 4 N/mm^2 .
- (b)** State the steps involved in choice of mix proportion and describe any two in detail. **07**
- OR**
- (b)** State the limitations of ACI mix design method, rebound hammer test and different NDT methods. **07**
- Q.3 (a)** State various types of cements & state the testing of cements as per IS & describe Std. consistency of cement in detail. **09**
- (b)** State the tests on workability & describe any one in detail. **05**
- OR**
- Q.3 (a)** Write short note on properties of repair materials & materials for repair. **06**
- (b)** State New Repair Systems or products. **03**
- (c)** State causes & precautions for distress in structures **05**

Q.4	(a)	State the factors affecting the strength of concrete & describe any two in detail.	06
	(b)	State destructive tests on hardened concrete and describe any one in detail.	05
	(c)	Write short note on segregations & their precautions.	03
		OR	
Q.4	(a)	State the different types of special concrete & describe light wt. conc. in detail.	06
	(b)	State the different types of special concreting techniques & explain Ready Mixed Conc. in detail.	05
	(c)	Mention Acceptance criteria for mix design & variations of test results	03
Q.5	(a)	Write short note on durability & permeability of conc.	07
	(b)	Write short note on hot & cold weather concreting.	07
		OR	
Q.5	(a)	Write short notes on Alkali-aggregate reactions, Sulphate attack & Chloride attack.	09
	(b)	State different types of chemical & mineral admixtures & differentiate between them.	05
