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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

SUMMER TERM / MAKE UP END TERM EXAMINATION

Semester: Summer Term 2019

Date: 25 July 2019

Course Code: CIV 204

Time: 2 Hours

Course Name: Concrete Technology and Construction Materials

Max Marks: 80

Program & Sem: B.Tech, IV& III Sem (2016 & 2017 Batch)

Weightage: 40%

Instructions:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.

Part A

Answer **all** the questions. **Each** question carries **six** marks

(5Qx6M=30)

1. Explain different types of slump in concrete
2. Explain about retarders and what are the limitations in using retarders?
3. Explain about the factors affecting workability.
4. How does mineral admixture affect the performance of concrete?
5. Define segregation. What are the causes for segregation?

Part B

Answer **all** the questions. **Each** question carries **ten** marks.

(3Qx10M=30)

6. Explain about various stages of manufacturing concrete.
7. Explain how to determine consistency of concrete using slump test.
8. Explain different methods of curing adopted in the field.

Part C

Answer the question. **The** question carries **twenty** marks.

(1Qx20M=20)

9. Design mix proportion for M35 grade concrete with flyash as per IS 10262:2009 using following data:

A-I STIPULATIONS FOR PROPORTIONING

- a) Grade designation: M35
- b) Type of cement: OPC 53 Grade conforming IS 12269

- c) Maximum nominal size of aggregate: 20mm
- d) Minimum cement content: 340 kg /m³ (IS 456:2000)
- e) Maximum water-cement ratio: 0.40 (Table 5 of IS 456:2000)
- f) Workability: 100-120mm slump
- g) Exposure condition: Moderate (For Reinforced Concrete)
- h) Method of concrete placing: Pumping
- j) Degree of supervision: Good
- k) Type of aggregate: Crushed Angular Aggregates
- m) Maximum cement content: 390 kg/m³
- n) Chemical admixture type: Super Plasticizer ECMAS HP 890
- o) Fly ash = 30% by weight of cement and specific gravity of 2.2

A-2 TEST DATA FOR MATERIALS

- a) Cement used: OPC 53 Grade conforming IS 12269
- b) Specific gravity of cement: 3.15
- c) Chemical admixture: Super Plasticizer (specific gravity =1.145)
- d) Specific gravity of
 - 1) Coarse aggregate 20mm: 2.67
 - 2) Fine aggregate: 2.65
 - 3) FLY ASH: 2.2 (JSW)
- e) Water absorption:
 - 1) Coarse aggregate: 0.5 %
 - 2) Fine aggregate (M.sand): 2.5 %
- f) Sieve analysis:
 - 1) Coarse aggregate: Conforming to all in aggregates of Table 2 of IS 383
 - 2) Fine aggregate: Conforming to Grading Zone II of Table 4 of IS 383