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SUBJECT CODE NO:- E-348
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E.(CIVIL) (CGPA) Examination Nov/Dec 2017
Concrete Technology
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Q.No-01 and Q.No-06 are compulsory. Attempt any two Questions from each section from remaining.
 - ii) Draw neat sketch wherever necessary.
 - iii) Figure to the right indicate full marks.

Section – A

Q.1 Answer the following questions (Any five) 10

- a) Why homogeneity and cohesiveness required in good concrete.
- b) Which factor is responsible for unsoundness of cement?
- c) Is it possible to determine unsoundness of Aggregate? Justify Answer.
- d) Is strength of PPC cement at 7 days is greater than opc cement. Give reason.
- e) Concrete needs to Travel longer distance from site of manufacturing to site of placing. Time required forty minutes suggest whether Admixture is necessary, which and why.
- f) What will happen if C_3A proportion increases and Quantity of gypsum added reduced to 2%.
- g) Differentiate between Destructive and Non-destructive Testing of concrete.
- h) Why workability of concrete is necessary. Enlist Test conducted to measure workability.
- i) Why pozzollanic materials used in High performance concrete.
- j) What is gel space ratio? Write the equation for gel space ratio [strength of get space ratio] for full Hydration.

Q.2 a) What is Finness modulus? Determine fineness modulus of coarse aggregate sample weigh 2250gm weight retained on each sieves are as follows. 08

Is sieve Numbers	40mm	20mm	16mm	10mm	Residue
Weight retained in gm	450	500	230	1050	20

Assume sieves not mentioned with zero weight.

b) Explain the properties of Aggregate which affect on strength of concrete. (Any four) 07

Q.3 a) What is the necessity of compaction of concrete? Explain compaction of concrete with Neat Sketch. 07

b) Explain relation between Tensile and compressive strength of concrete. 08

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- Q.4 a) Why formwork is required for concreting. Explain different types of formwork with Neat Sketch. 07
- b) Workability of concrete needs to be maintained during pumping of concrete. Give reason. Also explain slump cone test to determine workability. 08
- Q.5 a) Find gel space ratio and theoretical strength of sample of concrete with 1050gm of cement with 0.43 w/c ratio, on full Hydration and at 73% Hydration. 07
- b) What is curing and why it is required. Explain any three methods of curing with Neat sketch. 08

Section – B

- Q.6 **Answer the following questions. (Any five)** 10
- What is permeability of concrete? Suggest some preventive measure.
 - What is sulphate attack?
 - Enlist factor affecting cracks in concrete.
 - What is target mean strength of concrete in mix design?
 - Suggest some safety measures to avoid formwork failure.
 - Enlist different types of repair used in concrete.
 - Enlist material used for light weight concrete.
 - Write down advantages of ready mix concrete.
 - Is it possible to use wastes in concrete. Enlist different waste.
 - What is high density concrete where it is to be used?
- Q.7 a) Prepared a mix design for a concrete having grade m-40 and w/c ratio 0.43. The material is tested to obtained its properties before the Actual mix design and properties obtained is listed below. Cement – opc 53 with specific gravity 3.14. Fine Aggregate – belongs to Zone – I with Fineness modulus 2.78 having specific gravity 2.81 with moisture content 2% & water absorption Nil. Coarse Aggregate to be used having NMSA 20mm with water absorption 1.3% & moisture content Nil. Specify gravity 2.9. [Further suggested to assume data if required and mention at right location] 12
- b) Write a short note on underwater concreting. 03
- Q.8 a) Differentiate between High strength and High performance concrete. 05
- b) Explain the phenomena of carbonation & its significance. 05
- c) Write a short note on Hot weather concreting. 05
- Q.9 a) Explain sulphate attack and corrosion of reinforcement. 07
- b) Explain the material properties to be considered in mix design and its role in mix design. 05
- c) Explain briefly underwater concreting. 03

Q.10

- a) Differentiate between light weight concrete and High density concrete. Which material generally used for manufacturing of light weight and High density concrete. Also suggest its suitability to use. 06
- b) What is durability? How it can be achieved. Discuss briefly. 04
- c) Write a short note on common types of repairs. 05