

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-II Examination July 2010

Subject code: 722009**Subject Name: Concrete Technology****Date: 09 / 07 /2010****Time: 11.00am – 1.30pm****Total Marks: 60****Instructions:**

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

- Q.1** (a) Write answers to following in three or four sentences. **06**
 (i) What are the causes of unsoundness of cement?
 (ii) What is the difference between false set and flash set?
 (iii) Give examples of mixes with same slump but different workabilities.
- (b) Compare relative merits and demerits of different workability tests. **06**
- Q.2** (a) Write notes on following: **06**
 (i) Bogue's Compound
 (ii) Physical requirements of cement
- (b) Write notes on (i) Heat of hydration and (ii) Low heat cement **06**
- OR**
- (b) Write notes on (i) Super Sulphate cement (ii) Manufacturing process of cement (Wet process) **06**
- Q.3** (a) Explain the effects of shape and texture of Aggregates on the strength and workability of concrete. **06**
- (b) Explain (i) Grading of Aggregates and (ii) Alkali-Aggregate reaction **06**
- OR**
- Q.3** (a) Explain : What type of aggregates will be acceptable to you as project in-charge? Why? **06**
- (b) Write notes on (i) Bulking of Sand , (ii) Fineness modulus of aggregates **06**
- Q.4** (a) Explain non-destructive testing methods in brief. **06**
- (b) Distinguish between following : **06**
 (i) Accelerators – Retardars
 (ii) Air entraining admixtures – Gas forming agents
- OR**
- Q.4** (a) Explain limitations of indirect tension test methods to find strength of hardened concrete **06**
- (b) Write a note on (i) Floor hardeners and (ii) Joint sealants **06**
- Q.5** (a) How you will find standard consistency of cement in laboratory? Explain. **06**

- (b) Determine the quantity of Fine Agg. and Coarse Agg. for the following data: **06**
- (i) Mass of water / m³ of concrete = 198 kg.
 - (ii) Mass of cement / m³ of concrete = 390 kg
 - (iii) Specific gravity of cement = 3.15
 - (iv) Specific gravity of Fine Agg. = 2.55
 - (v) Specific gravity of Coarse Agg. = 2.62
 - (vi) % entrapped Air = 1.5 %
 - (vii) % Fine Agg. / Total Agg. = 32 %

OR

- Q.5 (a)** How you will find soundness of cement in laboratory with Le- chattelier's apparatus? Explain. **06**
- (b)** Answer the following in one or two sentences : **06**
- (i) If you are constructing a massive concrete dam, which cement you will use?
 - (ii) What is the significance of slump of concrete?
 - (iii) Write equation to find out lime saturation factor.
 - (iv) What is segregation?
 - (v) What is re-vibration?
 - (vi) Why is the C₃A content in cement is of interest?
