

Indian Institute of Technology Bombay
IDP in Educational Technology
Instructor Resources

Resource – <i>Peer Instruction Activity constructor</i>	Version 1.0, Nov 2018
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Part 1 – Plan your PI activity

1. Choose a subject and topic that you will be taking in the next/current semester.

Subject: CONCRETE TECHNOLOGY

Topic: Introduction to concrete technology

Part 2 – Type of PI Instruction

A. Goal: Conceptual reasoning “one right answer” questions.

Q) If M20 grade of concrete requires X amount of water then for M30 grade of concrete to achieve same workability the quantity of water will be

- a. Same as X
- b. Greater than X
- c. Less than X
- d. $X+Y$, where Y is the difference in grade of concrete

B. Goal: Discussion “no one right answer” questions

Q) Which of the following are means of carrying out non-destructive methods of hardened concrete testing?

- a. Schmidt Rebound hammer
- b. Acoustic methods
- c. Cube testing
- d. Nuclear methods

C. Goal: Predict an outcome (e.g., of an experiment, or a program)

Q) For a non-carbonated sample of concrete what is the reaction when a phenolphthalein indicator is sprayed over it.

- a. No color change observed i.e. Sample remains colorless
- b. Color changes to pink
- c. Spalling of concrete happens due to reaction
- d. None of the above

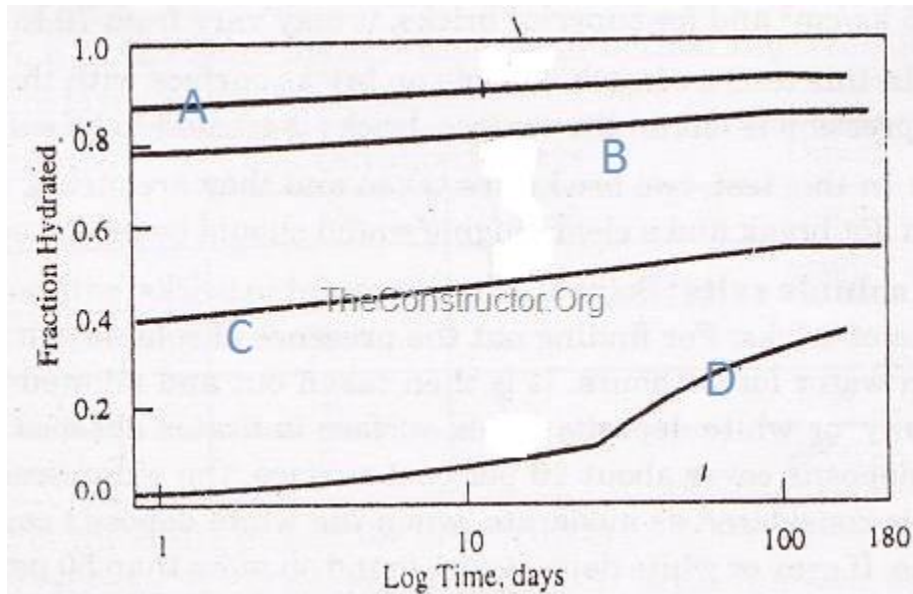
D. Goal: Embed reasoning in answers

Q) What are the benefits of increasing cohesiveness in concrete mix

- a. Makes the mix less susceptible to segregation
- b. Makes the mix more susceptible to segregation
- c. More liable to bleeding
- d. More liable to surface scaling in frosty weather.
- e. None of the above

E. Goal: Reason using representations

Q) Which of the following curves amongst the diagram represent the hydration rate of tertra calcium alumino ferate (C4AF) with respect to time?



- a. A
- b. B
- c. C
- d. D

F. Goal: As a stepping stone to problem-solving

Q) Following equation can be used to calculate the percentage (p) of Fine aggregate to combined aggregate if X, Y, Z are fineness modulus of coarse , fine & combined aggregate are known $p = \frac{X-Z}{Z-Y} * 100$, thereby calculate fineness modulus of coarse aggregate if 20 kg is sieved through 80 mm, 40 mm, 20 mm, 10 mm, 4.75 mm, 2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron standard sieves and the weights retained are 0 kg, 2 kg, 8 kg, 6 kg, 4 kg respectively, the fineness modulus of the aggregate, is

- a. 7.30
- b. 7.35
- c. 7.40
- d. 7.45

G. Goal: Recall point from previous lecture

Q) Points covered in last lecture: -

- a. Introduction to concrete
- b. Workability and its effects on concrete
- c. Non-destructive testing

H. Goal: Survey questions / personal opinion

To get an idea if the students understood the topic conducted a feedback was taken and parameters were judged ranging from 0-5, 0 being not understood 5 being clearly understood. This feedback was circulated amongst the class and response were tabulated and it was found that a total of 91% of the total participants understood the topic well.