

Concrete Technology Live Session 1

31 Jan 2022

Session starts at 6 pm



Concrete Technology Live Session 1

31 Jan 2022

Nilakanmani Manimaran (NPTEL TA)

Doctoral Research Scholar

PMRF Candidate

Indian Institute of Technology Madras

Chennai, India

Course Instructor: Prof. B. Bhattacharjee

Solving Practice Questions

Question 1

Which of the following properties of cement is considered to be undesirable or disadvantageous:

- a) Low life cycle cost
- b) Low ductility
- c) Mouldability
- d) Robustness

Question 1

Which of the following properties of cement is considered to be undesirable or disadvantageous:

- a) Low life cycle cost → Initial production cost as well as maintenance cost is comparatively low
- b) Low ductility → Concrete has poor ductility
- c) Mouldability → Can be mould into any required shape
- d) Robustness → Can tolerate adverse loading conditions

Question 1

Which of the following properties of cement is considered to be undesirable or disadvantageous:

- a) Low life cycle cost → Initial production cost as well as maintenance cost is comparatively low
- b) Low ductility → Concrete has poor ductility**
- c) Mouldability → Can be mould into any required shape
- d) Robustness → Can tolerate adverse loading conditions

Question 2

Which of the following abbreviation is used for Dicalcium Silicate (Belite):

- a) C_3S
- b) C_2S
- c) C_3A
- d) C_4AF

Question 2

Cement Chemistry Notations

Calcium oxide $\text{CaO} \rightarrow \text{C}$

Silicon dioxide $\text{SiO}_2 \rightarrow \text{S}$

Aluminium oxide $\text{Al}_2\text{O}_3 \rightarrow \text{A}$

Iron Oxide $\text{Fe}_2\text{O}_3 \rightarrow \text{F}$

Sulphur trioxide $\text{SO}_3 \rightarrow \bar{\text{S}}$

Question 2

Which of the following abbreviation is used for Dicalcium Silicate (Belite):

- a) C_3S - Tricalcium silicate
- b) C_2S - Dicalcium silicate**
- c) C_3A - Tricalcium aluminate
- d) C_4AF - Tetracalcium alumina ferrite

Question 3

The major constituent of concrete responsible for the dimensional stability of concrete is _____.

- a) Cement
- b) Aggregates
- c) Fly ash
- d) Chemical admixtures

Question 3

The major constituent of concrete responsible for the dimensional stability of concrete is _____.

- a) Cement → 25-40% cement paste
- b) Aggregates → 60-75%, inert & strong (does not react)
- c) Fly ash → Mineral admixture, cement replacement
- d) Chemical admixtures → enhance specific properties of the fresh or hardened concrete

Question 3

The major constituent of concrete responsible for the dimensional stability of concrete is _____.

- a) Cement → 25-40% cement paste
- b) Aggregates → 60-75%, inert & strong (does not react)
- c) Fly ash → Mineral admixture, cement replacement
- d) Chemical admixtures → enhance specific properties of the fresh or hardened concrete

Question 4

Cement mineral structure is characterized with:

- a) Equal sized anions and equal sized cations
- b) Small sized anions bonded with large sized cations
- c) Large sized anions bonded with small sized cations
- d) None of the above

Question 4

Cement mineral structure is characterized with:

- a) Equal sized anions and equal sized cations
- b) Small sized anions bonded with large sized cations
- c) Large sized anions bonded with small sized cations**
- d) None of the above

Question 5

Which of the following compound has the minimum heat of hydration:

- a) Tricalcium silicate
- b) Dicalcium silicate
- c) Tricalcium aluminate
- d) Tetra calcium alumina ferrite

Question 5

Which of the following compound has the minimum heat of hydration:

- a) Tricalcium silicate → 502 J/g
- b) Dicalcium silicate → 260 J/g
- c) Tricalcium aluminate → 867 J/g
- d) Tetra calcium alumina ferrite → 419 J/g

Question 5

Which of the following compound has the minimum heat of hydration:

- a) Tricalcium silicate → 502 J/g
- b) Dicalcium silicate → 260 J/g
- c) Tricalcium aluminate → 867 J/g
- d) Tetra calcium alumina ferrite → 419 J/g

Question 6

Lime saturation factor (LSF) is used as quality control parameter in cement manufacturing process. $LSF > 100$ indicates _____

- a) Cement quality is good
- b) Presence of free lime in cement
- c) Cement has better soundness
- d) None of the above

Question 6

Lime saturation factor (LSF) is used as quality control parameter in cement manufacturing process. $LSF > 100$ indicates _____

- a) Cement quality is good
- b) Presence of free lime in cement
- c) Cement has better soundness
- d) None of the above

Thank You