**Problems**

A-What are the effects of alkali oxides (K2O and Na2O) in cement?

B- Represent schematically cement and hydration of Portland cement.

i-List types of laboratory tests for cement.

ii- Draw the relationship between strength of concrete at different ages and fineness of cement.

1. Define aggregate and explain effects of aggregate size on the properties of concrete.

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1. What are the advantages of using thermostone blocks over other units building in construction? .

C- Explain with drawing figure the absorption of moisture in aggregate.

1. Classify types of segregation in concrete.
2. How bleeding can be reduced?.
3. List methods of timbering for deep trenches and explain one of them, enhance your answer by appropriate sketch. (8 Marks).
4. List types of shallow foundation and explain one of them.
5. Based on the use or the function, classify piles with a short description for each type.

What are, the limit conditions of using the maximum aggregate size in concrete?

A**-**list all types of cement.

B- Draw the relationship between the effect of mixing time and the strength of concrete at several stages of live.

What is the effect of time and temperature on the workability of concrete, support your answer by drawing the relationship between slumps with times and temperatures?

**A-** Way Flaky and Elongated aggregate not preferred to be used in concrete?

**B-** What is the effect of surface texture of the aggregate on the concrete?

**C-** In the summer, what are the necessary points that should be taken before pouring concrete on the slab of a multistorey building in Erbil city?

Define segregation, how segregation can be treated or avoided?

Define bleeding, what are the effects of bleeding?

Define curing, list and explain all methods of curing.

1. schematically represented cement and hydration of Portland cement.

 b-What are the types of segregation in concrete?

1-List all types of very high strength cement and explain one of them.

2- List all the laboratory tests for the cement.

What are the harmful materials in the aggregate (list and explain)?

a.1-The relationship between slump and time.

1. The relationship between moisture content and bulking of aggregates.
2. What is the meaning of segregation in the concrete? To remedy the segregation, what points should be adopted.

List and explain all the factors that effects on the workability of the concrete.

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