

# Question Bank in Concrete Technology Lab

Q1-Read the sentences. Then select the correct answer to complete each statement.

- 1-A single factor computed from the sieve analysis is sometimes used is called-----
- 2-In slump test rise up the mould carefully without lateral or torsional motion. It must be completed within ----- minutes after taking the sample
- 3-Tamping rod with a length of -----mm, diameter of ----- mm, and rounded end.

Q2-Answer the following questions in few short sentences:

- 1- Describe kinds of specific gravity.
- 2-Why bulk density of aggregate needs to be determined.?
- 3-What is the effect of aggregate grading on the properties of concrete?

Q3-What is the Objective of the following experiments:

- 1-Sieve Analysis of Aggregate.
- 2-Slump test.

Q4-Read the sentences. Then select the correct answer to complete each statement.

- 1- The -----specific gravity refers to the volume of the solid material excluding all pores.  
a- absolute          b- apparent          c- bulk
- 2- -----The increase in mass due to water in the pores of the material, expressed as a percentage.  
a- Absorption      b- Moisture content
- 3- The ratio of the loose bulk density to the compacted bulk density lies usually between -----  
a-0.86 and 0.93          b-0.87 and 0.96          c-0.85 and 0.95          d- 0.84 and 0.94
- 4- ----- is a laboratory test, which gives an indication to the consistency, cohesiveness and tendency of concrete to segregation.  
a-slump test          b-flow test

Q5-Answer the following questions in few short sentences:

- 1- Describe kinds of slump of fresh concrete with sketch.
- 2- What are the factors that influence on unit weight of aggregate?
- 3- What is the meaning of fineness modulus?

Q6-What is the Objective of the following experiments:

- 1-Sieve Analysis of Aggregate.
- 2- Bulk density of aggregate.
- 3-Flow test.

Q7- **Fill in the blanks with the correct words:**

- 1- In the fineness experiment as per ASTM the residue of cement sampled on the sieve 75 micron after sieving should not exceed ----- % for OPC.
- 2- The Normal consistency of cement means consistency which permits the vicat's plunger of

10mm diameter to penetrate to a point ----- from the bottom of vicat's mould.

- 3- If the breaking load of three cubic specimens were 66.1 kN, 64.5 kN and 62.3 kN, then the average compressive strength of the cement mortar equal to -----.
- 4- The ratio of the loose bulk density to the compacted bulk density lies usually between -----
- 5- ----- is a laboratory test, which gives an indication to the consistency, cohesiveness and tendency of concrete to segregation.

**Q8-Answer the following questions in few short sentences:**

- 1- Which method is widely used to determine the fineness of cement
- 2-Why kerosene used to determine specific gravity of cement.?
- 3-Define the setting of cement.
- 4- Describe kinds of slump of fresh concrete with sketch.
- 5- What is the meaning of fineness modulus?

**Q9- Fill in the blanks with the correct words**

- 1- One of the objectives of the specific gravity experiment is to determine the specific gravity of cement; it is normally used in -----.
- 2- According to BS 12269, the initial setting time of Ordinary Portland cement tested by Vicat's apparatus method shall be ----- 45 minutes.
- 3- If the breaking load of three cubic specimens were 74.6 kN, 77.8 kN and 73.4 kN, then the average compressive strength of the cement mortar equal to -----.
- 4- The -----specific gravity refers to the volume of the solid material excluding all pores
- 5- -----The increase in mass due to water in the pores of the material, expressed as a percentage.

**Q10- What is the Objective of the following experiments:**

- 1- Compressive Strength of Hydraulic Cement.
- 2 -Bulk density of aggregate.
- 3-Flow test.

**Q.11: In which experiments the following apparatus was used?**

- 1-Seives. 2-Tamping rod with 16 mm diameter rounded end and 600 mm length
- 3-Basket balance 4-Electrical shaker 5-Vicat apparatus

**Q.12: Fill in the blanks with the correct words:**

- 1- ----- is the ratio of the weight of a given volume of cement to the weight of an equal volume of water.
- 2- In compressive strength of hydraulic cement the proportion of the standard mortar is 1 part cement to ----- parts standard sand by weight.
- 3- A single factor computed from the sieve analysis test is sometimes used is called-----.

4- Tamping rod with a length of -----mm, diameter of ----- mm, and rounded end.

5- In slump test rise up the mould carefully without lateral or torsional motion. It must be completed within ----- minutes after taking the sample.

**Q.13:**

In the experiment of specific gravity of aggregate according to ASTM C127, calculate apparent and dry bulk specific gravity if the weight of saturated surface dry SSD aggregate sample was 200gm and total weight of pycnometer, specimen, and water was 821gm. After drying sample in oven for 24 hours weight was 192.5gm. Weight of pycnometer filled by water was 703gm.

**Q.14: What is the Objective of the following experiments:**

1- Compressive Strength of Hydraulic Cement. 2 -Bulk density of aggregate. 3-Flow test.

**Q.15 Fill in the blanks with the correct words:**

1-The ratio of the loose bulk density to the compacted bulk density lies usually between -----

2----- is a laboratory test, which gives an indication to the consistency, cohesiveness and tendency of concrete to segregation

3- In slump test rise up the mould carefully without lateral or torsional motion. It must be completed within ----- minutes after taking the sample

4- The -----specific gravity refers to the volume of the solid material excluding all pores.

5----- is the water in excess of the saturated and surface-dry condition. In other word the amount of surface water.

**Q.16:** In the experiment of compressive strength of cement according to ASTM C109, calculate the amount of water and standard sand required for preparation of the cement-sand mortar, if the weight of the cement equal to 500 gm. Determine the average compressive strength of the cement if the failure load was 47.2, 48.5, and 48.0 kN for three tested cubes.

**Q17- Fill in the blanks with the correct words.**

1-In the fineness experiment it should be continuously sieve the sample of cement for ----- -- minutes by holding the sieve in both hands and giving wrist motion.

2-The sand used in compressive strength test is standard sand natural silica sand passing sieve ----- micron and retained on sieve 600 micron.

3-A single factor computed from the sieve analysis test is sometimes used is called----- .

4-In the soundness experiment after taking the first reading submerge the mould again in water bath. Bring the water to boiling point in 25 to 30 minutes and keeps it boiling for --

-----.

5- ----- is a laboratory test, which gives an indication to the consistency, cohesiveness and tendency of concrete to segregation.

**Q18-Answer the following questions in a few short sentences:**

- 1-Describe kinds of slump of fresh concrete with sketch.
- 2- Why there are different types of specific gravity?
- 3-Define the setting of cement.

Q19-The following data was obtained from specific gravity experiment of cement. Calculate the specific gravity of the cement sample.

Weight of cement (W1) = 27.35 gm

Weight of Pycnometer + Kerosene (W2) = 126.78 gm

Weight of Pycnometer + Kerosene+cement (W3) = 147.25 gm

Weight of Pycnometer +Water (W4) = 148.63 gm

Weight of empty Pycnometer (W5) = 47.42 gm

**Q20- Fill in the blanks with the correct words.**

- 1- One of the objectives of the specific gravity experiment is to determine the specific gravity of cement; it is normally used in -----.
- 2-In compressive strength of hydraulic cement, the proportion of the standard mortar is 1 part cement to ----- parts standard sand by weight.
- 3- -----is the increase in mass due to water in the pores of the material, expressed as a percentage.
- 4- The Normal consistency of cement means consistency which permits the vicat's plunger of 10mm diameter to penetrate to a point ----- from the bottom of vicat's mould.
- 5-Tamping rod with a length of -----mm, the diameter of ----- mm, and rounded end.

**Q21-Answer the following questions in a few short sentences:**

- 1- Why kerosene used to determine specific gravity of cement.?
- 2-Why bulk density of aggregate needs to be determined.?
- 3- What are the factors that influence on unit weight of aggregate?

Q22- In the experiment of specific gravity of aggregate according to ASTM C127, calculate apparent and dry bulk specific gravity if the weight of saturated surface dry SSD aggregate sample was 200gm and total weight of pycnometer, specimen, and water was 821gm. After drying the sample in the oven for 24 hours, the weight was 192.5gm. The weight of the pycnometer filled with water was 703gm.

**Q23- Fill in the blanks with the correct words.**

- 1- A single factor computed from the sieve analysis is sometimes used is called-----.
- 2- In slump test rise up the mould carefully without lateral or torsional motion. It must be completed within ----- minutes after taking the sample.
- 3- The -----specific gravity refers to the volume of the solid material excluding all pores.
- 4- Tamping rod with a length of -----mm, the diameter of ----- mm, and rounded end.
- 5-If the breaking load of three cubic specimens were 66.1 kN, 64.5 kN and 62.3 kN, then the average compressive strength of the cement mortar equal to -----.
- 6- ----- is the increase in mass due to water in the pores of the material, expressed as a percentage.

**Q24-In which experiments the following apparatus was used?**

- 1-Seives.    2-Tamping rod with 16 mm diameter rounded end and 600 mm length
- 3-Basket balance    4-Electrical shaker    5-Vicat apparatus

**Q25-Answer the following questions in a few short sentences:**

- 1- Describe kinds of slump of fresh concrete with sketch.
- 2- Define the setting of cement.
- 3-Why kerosene used to determine specific gravity of cement?

Q26- In the experiment of specific gravity of aggregate according to ASTM C127, calculate apparent and dry bulk specific gravity if the weight of saturated surface dry SSD aggregate sample was 220gm and total weight of pycnometer, specimen, and water was 836gm. After drying the sample in the oven for 24 hours, the weight was 211.5gm. The weight of the pycnometer filled with water was 703gm.

**Q27- Fill in the blanks with the correct words.**

- 1- If the breaking load of three cubic specimens were 66.1 kN, 64.5 kN and 62.3 kN, then the average compressive strength of the cement mortar equal to -----.
- 2-A single factor computed from the sieve analysis is sometimes used is called-----.
- 3- ----- is the increase in mass due to water in the pores of the material, expressed as a percentage.
- 4-Tamping rod with a length of -----mm, the diameter of ----- mm, and rounded end.

5-In slump test rise up the mould carefully without lateral or torsional motion. It must be completed within ----- minutes after taking the sample.

6- The -----specific gravity refers to the volume of the solid material excluding all pores.

**Q28-Answer the following questions in a few short sentences:**

1- Which method is widely used to determine the fineness of cement.

2- Define the setting of cement.

3-Why kerosene used to determine specific gravity of cement?

**Q29-In which experiments the following apparatus was used?**

1-Seives. 2-Tamping rod with 16 mm diameter rounded end and 600 mm length

3-Basket balance 4-Electrical shaker 5-Vicat apparatus

Q30- In the experiment of specific gravity of aggregate according to ASTM C127, calculate apparent and dry bulk specific gravity if the weight of saturated surface dry SSD aggregate sample was 215gm and total weight of pycnometer, specimen, and water was 836gm. After drying the sample in the oven for 24 hours, the weight was 206.5gm. The weight of the pycnometer filled with water was 703gm.