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جامعة بيرزيت
BIRZEIT UNIVERSITY

في مجموعات محلي تكرر باطن

Civil Engineering Department
Construction Material Lab (ENCE 215)
Quiz # 1

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Q:1 Fill in the blanks (20 Marks) 15/20

1- Workability defined as..the ease..with which we can deal with concrete.....
.....

2- In the slump test, the cone was filled in ..3..... Layers, each layer was compacted ..25.....blows using rod with dimension of 600 mm....length, and ..16 mm..diameter.

3- There are three shape of slump: failure ,..... and..one-shaped....

4- Compacting factor can be defined as....partially compacted.....
.....fully compacted.....

5- In sieve analysis test the fine aggregates was put on the vibrating machine for ..3..... minutes, while coarse aggregates put on vibrating machine for ..3..... minutes.

6- In sieve analysis test the fine aggregate washed on sieve #..200.....

7- Fine aggregates can be simply defined as the aggregates that pass sieve #.....4 (4.75mm)

8- In los Angelos abration test 5 kg sample consists of ..5..... Kg collected from seive ..9.5.....and 2.5.....kg collected from sieve ..12.5..... Is tested accoding to grade B with ..11..... metalic balls and the intac material is obtained by sieving the sample on the seive #....12.....

9- Apparent specific gravity defined as..mass..of..the..aggregate..with..super..neable..voids.....
divided by mass of water.

10-In sieve analysis test the fine aggregates washed on sieve # ..200....., also it must be dried in the oven at a temperature of.....110.....for....24..... hours.

Q2: complete the table below for the sieved 20 mm aggregate and find the following: (20 Marks)

1-Percentage error and specify whether it's acceptable or not

2-Finesse modules

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Mass before sieving = 1381.2 gm

Sieve size (mm)	Individual mass retained (gm)	Corrected mass retained	Individual percent retained	Cumulative percent retained	Cumulative percent passing
25	2.3	2.304	0.167%	0.167%	99.833%
19	52.2	52.291	3.786%	3.953%	96.047%
12.5	1143.6	1145.587	82.941%	86.894%	13.106%
9.5	150.0	150.261	10.879%	97.773%	2.227%
6.3	16.5	16.529	1.197%	98.970%	1.030%
4.75	9.5	9.517	0.689%	99.659%	0.341%
Pan	4.7	4.708	0.341%	100%	0%

after = 1378.8

difference = 1381.2 − 1378.8 = 2.4 g

2- $F.M = \frac{\sum \text{cumulated retained} + 500}{100}$

$= 8.87506$

Per. error

$= \frac{2.4}{1381.2} * 100\%$

$= 0.173\%$

$< 1.5\%$

∴ accepted

Q3: For a sample of **coarse aggregate** the following data is collected **(10 Marks)**

Displaced aggregate weight (gm)	230 gm
Bulk Specific gravity on dry basis	2.362
Specific gravity on saturated surface dry biases	2.474

1-Find absorption ratio for this aggregate sample

$$2.474 = \frac{B}{B-230}$$

$$2.474(B-230) = B$$

$$2.474B - 569.02 = B$$

$$B = 386\,gm$$

$$2.362 = \frac{A}{156}$$

$$A = 368.472\,gm$$

$$\text{Absorption} = \frac{B-A}{A}\% = \frac{386-368.472}{368.472} \times 100\% = 4.757\%$$

2-Find apparent specific gravity.

$$\text{apparent} = \frac{A}{A-C} = \frac{368.472}{368.472-230} = 2.661$$

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