Q1/ Will the oven temperature change if Organic soil was tested instead of inorganic Soil? If yes, why?

Q2/ If you test a high plasticity soil, what is the expected water content?

Q3/ What are the factors that affect on value of Gs?

Q4/ What are typical values of the specific gravity of soils?

Q5/ Why do we use vacuum while determining the specific gravity of soils?

Q6/ What is the effect of water temperature on the determination of specific gravity of soils?

Q7/ On which basis do you select the number and opening of sieves for the sieve analysis of a given soil?

Q8/ On what range of particle size does the sieve analysis apply?

Q9/ Is it possible to carry out a sieve analysis on a sample of clay? Why?

Q10/Under what conditions should you use wet sieving instead of dry sieving?

Q11/ What are the applications of grain size analysis in engineering practice?

Q12/ Does hydrometer analysis determines the size of soil particles exactly?

Q13/ What physical quantity is read on the stem of a 152 H hydrometer? At what location does it measure it?

Q14/ For what reason do you agitate the suspension at the beginning of the hydrometer test?

Q15/ Why it can not be used more than 60 g of soil per 1000ml of water in the hydrometer test?

Q16/ Several factors (operation factors) that affect the liquid limit test or the number of blows required to close the standard groove 12.7mm.

Q17/ Mention factors that affect the liquid limit test.

Q18/ Why it is not preferable to leave the soil in the brass cup for along period of time?

Q19/ Distilled water is preferable to tap water for determining liquid limit?

Q20/ The plasticity index of highly plastic soil is about what? The plasticity index of highly plastic soil is about 20-40.

Q21/ Define the plasticity index.

Q22/ How you can describe the soil, when either LL or PL can not be determined?

Q23/ Neither the constant-head nor the falling-head laboratory provides a reliable value for the coefficient of permeability of a soil?

Q24/ Mention the merits of using deaired water in the permeability test?

Q25/ Permeability tests on soils of low permeability must be performed very carefully for the results to have meaning? Why?

Q26/ Does the permeability coefficient increases or decreases with water temperature? Why?

Q27/ Under which condition, Qin not equal to Qout?

Q28/ The unconfined compression test does not generally provide a very reliable value of soil shear strength? Why?

Q29/ The specimen should reach failure within about 10 min.?

Q30/ It is conventional in soil mechanics to correct the on which the load p is acting? Why?

Q31/ Explain effect of increasing load P during test on the modulus of elasticity (E) by computing of 0.25 qu, 0.5qu, 0.75q,,, and for qu.?

Q32/ Which case in field does UU test simulate?

Q33/ Under which state, test conditions and types of shear parameters should be chosen?

Q34/ The shear strength of plastic undrained clay depends upon internal friction or cohesion?

Q35/ It is conservative or un-conservative to correct the area in direct shear test? Why?

Q36/ Under which criteria, the space between the two parts of shear box will be selected?

Q37/ Write appropriate comments about the shape of the curve which is plotted between horizontal displacement and vertical movement.

Q38/ The consolidation test proceeds by applying loads in geometric progression with a load ratio $\Delta P/P = 1$? Why?

Q39/ When the greatest amount of the total compression of the sample occurs as soon as at the start or end of the loading?

Q40/ The soil is normally consolidated clay or over consolidated clay if overburden pressure is 50 KPa?

Q41/ following are the results of a sieve analysis:

	sieve opening (mm)	Mass of soil retained on each sieve (g)
4	4.7	103.7
10	2	89.08
20	0.850	78.05
30	0.6	35.32

40	0.425	35.5
100	0.150	108.23
200	0.075	30.59
pan		20.28

Q42/ .determine the percent finer than each sieve and plot a grain size distribution curve. .from eqution 41

Q43/ calculate the uniformity coefficient Cu. .from eqution 41

Q44/ calculate the coefficient of gradation.from eqution 41

Q45/ Define the specific gravity of soil? What are the purposes of this test?

Q46/ On what range of particle size does the sieve and hydrometer analysis apply?

Q47/ In hydrometer test; assume that the specific gravity of tested soil is 2.75, is this value of G_s needs to be corrected or not? If yes, determine the correction factor (a).

Specific gravity	*2.65*
Specimen dry mass (g)	*1744.90*
Specimen height (cm)	*11.20*
Specimen diameter (cm)	*10.11*
Diameter of standpipe (cm)	*1.59*

Q48/ What is the purposes of unconfined compression test?

Q49/ Does the permeability coefficient increases or decreases with water temperature? Why?

Q50/ Which method is mostly used to determine the water content in field?

Q51 / Find the **Coefficient of Permeability (*k*)** for the following soil. The test was performed using Falling Head apparatus.

Time (min) t	Initial Height of water in standpipe (cm) h1	Final Height of water in standpipe (cm) h2	Temperature (^{o}C)
60	*162*	*150*	*20*
120	*162*	*140*	*20*
60	*152*	*141*	*20*

Q52/ What is the Meniscus correction?

Q53/ During a hydrometer analysis for 50 gram of soil sample with specific gravity 2.73 immersed in a water suspension with a temperature of 26oC,the following hydrometer reading was found :

Actual hydrometer reading Ra (g/L)	Minutes of sedimentation
20	60
17.5	120
15	240

Q54/ Calculate percent of %finer of soil particle if zero correction =5gm/L and temperature correction =+1.65. from eqution 53.

Q55/ What are the diameters of particles that have settled during these times? Assume 1 g/L as meniscus correction.from eqution 53.

Q56/ Which method is mostly used to determine the water content in field?

Q57/ Is it possible to carry out a sieve analysis on a sample of clay? Why?

Q58/ Why the result of the hydrometer analysis is insufficient to characterize fine-grained soil?

Q59/ What is the effect of Plastic Limit on the properties of soils? Explain

Q60/ Does the permeability coefficient increases or decreases with water temperature? Why?

Q61/ /Find Specific Gravity (Gs) for the following soil:

Weight of Pycnometer + Top (empty) (g)	55.15
Weight of Pycnometer +Soil (g)	80.16
Weight of Pycnometer +Soil + Water (g)	171.23
Weight of Pycnometer + Water (g)	155.48

Specific Gravity (Gs)=	

Q62/ In this sieve analysis table find the following:

Sieve No.	Sieve Opening (mm)	Weight of Sieve (g)	Weight of sieve + soil retained (g)	Weight of soil retained (g)	%Retained on each sieve (g)	Cumulative of %Retained	%Passing (finer)
4	4.75	584.1	631.3	47.2			
10	2	568.2	618.4	50.2			
20	0.85	508.2	567.1	58.9			
30	0.6	478.3	521.2	42.9			
40	0.425	485.5	514.6	29.1			
100	0.15	429.9	450.3	20.4			
200	0.075	417.1	426.2	9.1			
Pan		350.5	353.0	2.5			
Ws (g)			260.3				

1- Coefficient of Gradation or concavity =

2- Coefficient of Uniformity =

3- Effective size (Effective Diameter) =

Q63/ Find the Coefficient of Permeability (k) for the following soil. The test was performed using Falling Head apparatus.

Q64/ Find Specific Gravity (Gs) for the following soil:

Weight of Pycnometer + Top (empty) (g)	50.12
Weight of Pycnometer +Soil (g)	84.13
Weight of Pycnometer +Soil + Water (g)	161.33
Weight of Pycnometer + Water (g)	145.52

Specific Gravity (Gs)=	**2.65**

Q65/ During a hydrometer analysis for 50 gram of soil sample with specific gravity **2.73** immersed in a water suspension with a temperature of 26^{o}C,the following hydrometer reading was found :

Actual hydrometer reading Ra (g/L)	Minutes of sedimentation
22	61
18.5	121
14	239

Q66/- Will the oven temperature change if Organic soil was tested instead of inorganic Soil? If yes, why?

Q67/ If you test a high plasticity soil, what is the expected water content?

Q68/Under which condition, kerosene is used as a liquid instead of distilled water?

Q69/What is the effect of the soil type on the OMC and MDD?

Q70/ How can you quickly verify the result of dry sieve?

Q71/ Under what conditions should you use wet sieving instead of dry sieving?

Q72/ DefineGrain Size Analysis of Soils**.**

Q73/ How can you quickly verify the result of dry sieve?

Q**74**/ Under what conditions should you use wet sieving instead of dry sieving?

Q75/ Why the hydrometer is slowly inserted in the cylinder, about 10 sec being taken for this.

Q76/ The liquid limit cannot be more than 100%. It is true or not? Explain.

Q77/How you can describe the soil, when either LL or PL can't be determined?

Q78/ Define the Permeability of Soils,

Q79/ From the test results explain that the discharge increase or decrease with passing time?

Q80/In Falling Head Test, Under which condition, Qin not equal to Qout?