



**POSTAL  
BOOK PACKAGE**

**2025**

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**CIVIL  
ENGINEERING**

**Objective Practice Sets**

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## Soil Types and Formations

**Q.1** The soils which are formed by transportation of the weathered rock materials by the wind are called  
 (a) aeolian soils (b) marine soils  
 (c) lacustrine soils (d) alluvial soils

**Q.2** The most uniform soil deposit is  
 (a) wind-laid deposit  
 (b) delta deposit  
 (c) shore deposit  
 (d) glacial deposit

**Q.3** Consider the following statements:  
 1. Soils transported by gravitational forces are termed as colluvial soils  
 2. Cumulose soils are the result of the accumulation of decaying and chemically deposited vegetable matter under the conditions of excessive moisture  
 3. Loess is the wind blown silt or silty clay having little or no stratification  
 Which of these statement(s) is/are correct?  
 (a) both 1 and 2 (b) only 3  
 (c) both 2 and 3 (d) 1, 2 and 3

**Q.4** The soil moisture driven off by heat, is called  
 (a) free water  
 (b) hygroscopic water  
 (c) gravity water  
 (d) none of these

**Q.5** Match **List-I** (type of soil) with **List-II** (mode of transportation and deposition) and select the correct answer using the codes given below the lists:

**List-I**

- A. Lacustrine soils
- B. Alluvial soils
- C. Aeolian soils
- D. Marine soils

**List-II**

- 1. Transportation by wind
- 2. Transportation by running water
- 3. Deposited at the bottom of lakes
- 4. Deposited in sea water

**Codes:**

	A	B	C	D
(a)	1	2	3	4
(b)	3	2	1	4
(c)	3	2	4	1
(d)	1	3	2	4

**Q.6** Consider the following statements in the context of aeolian soils:  
 1. The soil has low density and low compressibility.  
 2. The soil is deposited by wind.  
 3. The soil has large permeability.  
 Which of these statements are correct?  
 (a) 1, 2 and 3 (b) 2 and 3  
 (c) 1 and 3 (d) 1 and 2

**Q.7** Which of the following types of soil is not transported by gravitational forces?  
 1. Loess 2. Peat 3. Talus  
 (a) Only 3 (b) Both 1 and 3  
 (c) Both 1 and 2 (d) 1, 2 and 3

**Q.8** Bentonite is a material obtained due to the weathering of  
 (a) limestone (b) quartzite  
 (c) volcanic ash (d) shales

**Q.9** Lacustrine soils are soils  
 (a) transported by rivers and streams  
 (b) transported by glaciers  
 (c) deposited in sea beds  
 (d) deposited in lake beds

**Multiple Select Questions (MSQ)**

- Q.10** Consider the following statements in the context of Aeolian soils and choose the correct options.
- (a) It is formed due to transportation by wind.
  - (b) It is a type of residual soil.
  - (c) The soil has large permeability.
  - (d) The soil has low density and low compressibility.

- Q.11** Transported soils are classified according to the transporting agency and method of deposition. Identify the true options:
- (a) Alluvial deposit: Soils that have been deposited from suspension in running water.
  - (b) Lacustrine deposit: Soils that have been deposited from suspension in still, fresh water of lakes.
  - (c) Marine deposit: Deposits that have been transported by ice.
  - (d) Glacial deposit: Soils that have been deposited from suspension in running water.



**Answers      Soil Types and Formations**

1. (a)    2. (a)    3. (d)    4. (b)    5. (b)    6. (b)    7. (c)    8. (c)    9. (d)    10. (a, c)  
11. (a, b)

**Explanations      Soil Types and Formations**

- 1. (a)  
**Alluvial Soil:** Soil that has been deposited by suspension in running water.  
**Lacustrine:** Soil that has been deposited from suspension in still fresh water of lakes.
- 2. (a)  
Wind laid deposit is the most uniform soil deposit.
- 4. (b)  
Water which is held tightly on the surface of soil colloidal particle in known as hygroscopic water.
- 6. (b)  
Aeolian soils have high compressibility and high permeability.
- 7. (c)  
Loess is a loose deposit of windblown silt that has been weakly cemented with calcium carbonate and montmorillonite.
- 8. (c)  
Bentonite is decomposed volcanic ash containing high percentage of clay mineral-montmorillonite.
- 9. (d)  
Lacustrine soils are silt and clays which have been deposited in still, fresh water of lakes.
- 10. (a, c)  
Aeolian soil is deposited by wind. It consists of uniformly graded particles. They are in loose state so void ratio and permeability of soil is high. These soils have high compressibility and low density.
- 11. (a, b)  
**Marine deposit:** Soils that have been deposited from suspension in sea water.  
**Glacial deposit:** Deposits that have been transported by ice.



## Properties of Soils

**Q.1** Consider the following statements:

1. In three phase system, soil contains solids, water and air.
2. In two phase system, soil contain solid and air in dry system or solid and water in wet phase.

Which of the following is correct?

- (a) Both statements are correct
- (b) Statement 1 is correct and 2 is false
- (c) Statement 2 is correct and 1 is false
- (d) Both statements are false

**Q.2** Which of the following can be used for determination of water content in the field as well as in laboratory?

- (a) Oven drying method
- (b) Pycrometer method
- (c) Rapid moisture meter method
- (d) Torsion balance moisture meter method

**Q.3** Consider the following statements regarding hydrometer analysis for sedimentation analysis

1. Meniscus correction is always positive
2. Temperature correction is negative if temperature is above 27°C
3. Temperature correction is positive if temperature is below 27°C

Which of the following statement(s) is/are correct?

- a) Only 1
- b) 1 and 2
- c) 2 and 3
- d) 1, 2 and 3

**Q.4** The difference between maximum void and minimum void ratio of a sand sample is 0.30. If the relative density of this sample is 66.6% at a void ratio of 0.40, then the void ratio of this sample at its loosest state will be:

- (a) 0.40
- (b) 0.60
- (c) 0.50
- (d) 0.75

**Directions :** Each of the next items consists of two statements, one labelled as 'Statement (I)' and the other as 'Statement (II)'. Examine these two statements

carefully and select the answers to these items using the codes given below:

**Codes:**

- (a) Both Statement (I) and Statement (II) are individually true; and Statement (II) is the correct explanation of Statement (I)
- (b) Both Statement (I) and Statement (II) are individually true; but Statement (II) is NOT the correct explanation of Statement (I)
- (c) Statement (I) is true; but Statement (II) is false
- (d) Statement (I) is false; but Statement (II) is true

**Q.5 Statement (I):** In a partially saturated soil, void ratio remains constant with change in water content.

**Statement (II):** In saturated soil mass, void ratio changes with change in water content due to change in volume of solids.

**Q.6 Statement (I):** If a non-plastic soil is mixed with high plastic soil (clay), then plasticity of clay reduces.

**Statement (II):** Due to mixing, liquid limit and plastic limit both reduces but loss in liquid limit is less than loss in plastic limit.

**Q.7** Minimum value of relative compaction is \_\_\_\_\_

**Q.8** When a soil sample is placed in an oven for 24 hr at 105°C,

1. hygroscopic moisture is lost
2. capillary water is lost
3. free water is lost
4. structural water is lost

Which of the above statements are correct?

- (a) 1, 2 and 4
- (b) 2 and 4
- (c) 1, 2, 3 and 4
- (d) 1, 2, and 3

**Q.9** Consider the following regarding consistency index

1. If consistency index  $> 1$ , then soil is in either solid or semi solid state.

2. If consistency index is between 0 and 1, then soil is in plastic state.
3. If consistency index is less than zero, then soil is in liquid state.
4. Consistency index is directly related to liquidity index.

Which of the above statements are correct?

- (a) 1, 2 and 4                      (b) 1, 2 and 3  
(c) 2, 3 and 4                      (d) 1, 2, 3 and 4

**Q.10** Which of the following can be determined for both undisturbed and remoulded soils?

- (a) Liquid limit                      (b) Plastic limit  
(c) Shrinkage limit                      (d) None of these

**Q.11** The minimum water content at which the soil just begins to crumble when rolled into threads of 3 mm diameter is known as

- (a) liquid limit  
(b) plastic limit  
(c) shrinkage limit  
(d) optimum water content

**Q.12** Water content is accurately determined by

- (a) Calcium carbide method  
(b) Sand bath method  
(c) Alcohol method  
(d) Oven-drying method

**Q.13** Which of the following statement(s) is(are) true about sensitivity of soil?

1. It is ratio of confined compressive strength of disturbed soil to that of remoulded soil.
2. Gravels are sensitive in nature.

- (a) Both 1 and 2  
(b) Statement 1 is true but 2 is false  
(c) Statement 2 is true but 1 is false  
(d) Both statements are false

**Q.14** When water content is decreased, reduction in volume is observed in

- (a) liquid state                      (b) plastic state  
(c) semisolid state                      (d) All of these

**Q.15** A clayey soil has saturated moisture content of 18%. Its saturation percentage is 70%. The soil is allowed to absorb water and saturation increases to 92% after some time. Assume specific gravity of soil to be 2.72, the water content of soil in later case is

- (a) 20.26                      (b) 23.66  
(c) 21.24                      (d) 25.61

**Q.16** A natural deposit of loose, dry sand of 6 m thickness, having unit weight of  $15 \text{ kN/m}^3$  is compacted and surface settles by 0.5 m. Relative density of sand after compaction is 90%. The dry unit weight in loosest state is  $11 \text{ kN/m}^3$ . Calculate the dry unit weight in the densest state in  $\text{kN/m}^3$

- (a) 16.85                      (b) 17.29  
(c) 18.36                      (d) 19.46

**Q.17** One cubic metre of soil weighs 1624 kg and after drying, 1400 kg. If specific gravity of solids is 2.65, determine the degree of saturation of soil

- (a) 45.23%                      (b) 47.49%  
(c) 50.51%                      (d) 16%

**Q.18** A sampler with a volume of  $45 \text{ cm}^3$  is filled with a soil sample. When the soil is poured into a graduated cylinder, it displaces  $25 \text{ cm}^3$  of water. The value of porosity of the soil is

- (a) 0.8                      (b) 0.44  
(c) 0.5                      (d) 0.58

**Q.19** 800 g of wet sandy sample was placed in a pycnometer. The mass of the pycnometer, sand and water full to the top is 2200 g and mass of pycnometer filled with water only is 1800 g. The value of water content if  $G = 2.65$  is \_\_\_\_\_

**Q.25** In a liquid limit test, the moisture content at 10 blows was 70% and that at 100 blows was 20%, the liquid limit of the soil is

- (a) 35%                      (b) 61.67%  
(c) 50.1%                      (d) 65%

**Q.21** The liquid limit and plastic limit of soil are 50% and 30% and percentage of particles coarser than 2 microns in clay is 60%. Then activity of soil is

- (a) 0.33                      (b) 0.5  
(c) 1.0                      (d) 1.33

**Q.22** Which of the following is not an assumption of Stoke's law (Grain size analysis of soils)?

- (a) The falling soil particle (grain) is spherical  
(b) The velocity of a free fall of a single sphere is in suspension of infinite extent  
(c) An average value of specific gravity of grains is used in computing the Stoke's formula  
(d) The finer particles of soil do not have tendency for floc formation

**Q.23** A sample of dry soil having specific gravity of 2.74 and having a mass of 133.7 g is uniformly dispersed