Q1 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	List – II
a. Lacustrine soils	1 Transportation by wind
b. Alluvial soils	2 Transportation by running water
c. Aeolian soils	3 Deposited at the bottom of lakes
d. Marine soils	4 Deposited in sea water

Codes :
A. A – 1, B – 2, C – 3, D – 4
B. A – 3, B – 2, C – 1, D – 4
C. A – 3, B – 2, C – 4, D – 1
D. A – 1, B – 3, C – 2, D – 4

Q2. Match List-I with List-II and select the correct answer

List – I	List – II
a Loess	1 Deposited from suspension in running water
b Peat	2 Deposits of marine origin
• Alluvial soil	3 Deposits by wind
• Marl	4 Organic soil

Codes :
• A – 3, B – 4, C – 2, D – 1
• A – 4, B – 3, C – 1, D – 2
• A – 4, B – 3, C – 2, D – 1
• A – 3, B – 4, C – 1, D – 2

Q 3. The collapsible soil is associated with

(a) Dune sands

(b) Laterite soils

(c) Loess

(d) Black cotton soils

Q 4. Consider the following statements:

1• Peat and muck are organic soils.
2• Peat is an inorganic soil whereas' muck is an organic soil.
3• Indurated clay is a type of clay which does not soften under prolonged wetting.

Which of the above statements is/are correct?

(a) 1, 2 and 3

(b) 2 only

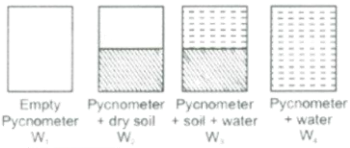
(c) 3 only

(d) 1 and 3 only

Q 5. The liquid limit and plastic limit of soil sample P are 65% and 29% respectively. The percentage of the soil fraction with grain size finer than 0.002 mm is 24. The activity ratio of the soil sample is

(a) 0.50
(b) 1.00
(c) 1.50
(d) 2.00

Q 6. The given figure indicate the weights of different pycnometers :



(a) $\frac{W_2}{W_4-W_2}$

(b) $\frac{W_2-W_1}{(W_3-W_4)(W_2-W_1)}$

(c) $\frac{W_2}{(W_3-W_4)}$

(d) $\frac{W_2-W_1}{(W_2-W_1)-(W_3-W_4)}$

Q 7. A soil sample has a shrinkage limit of 10% and specific gravity of solids as 2.7. The porosity of the soil at shrinkage limit is

(a) 21.2%

(b) 27%

(c) 73%

(d) 78.8%

Q 8. In a wet soil mass, air occupies one-sixth of its volume and water occupies one-third of its volume. The void ratio of the soil is

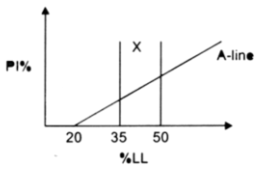
(a) 0.25

(b) 0.5

(c) 1.00

(d) 1.50

Q 9. The standard plasticity chart to classify fine grained soils is shown in the given figure.



The area marked X represents

(a) silt of low plasticity

(b) clay of high plasticity

(c) organic soil of medium plasticity

(d) clay of intermediate plasticity

Q 10. A dry soil has mass specific gravity of 1.35. If the specific gravity of solids is 2.7, then the void ratio will be

(a) 0.5

(b) 1.0

(c) 1.5

(d) 2.0

Q 11. A soil has liquid limit of 60% plastic limit of 35% and shrinkage limit of 20% and it has a natural moisture content of 50%. The liquidity index of soil is

(a) 1.5

(b) 1.25

(c) 0.6

(d) 0.4

Q 12. Consider the following statements in relation to the given sketch:

1• Soil is partially saturated at degree of saturation = 60%
2• Void ratio = 40%
3• Water content = 30%
4• Saturated unit weight = 1.5 g/cc

Which of these statements is /are correct?

(a) 1, 2 and 3

(b) 1, 3 and 4

(c) 2, 3 and 4

(d) 1, 2 and 4

Q 13. A fill having a volume of 1,50,000 cum is to be constructed at a void ratio of 0.8. The borrow pit soil has void ratio of 1.4. The volume of soil required (in cubic metres) to be excavated from the borrow pit will be

(a) 1,87,500

(b) 2,00,000

(c) 2,10,000

(d) 2,50,000

Q 14. The moisture content of a clayey soil is gradually decreased from a large value. What will be the correct sequence of the occurrence of the following limits?

1• Shrinkage limit
2• Plastic limit.
3• Liquid limit.

Select the correct answer from the codes given below:

(a) 1, 2, 3

(b) 1, 3, 2

(c) 3, 2, 1

(d) 3, 1, 2

Q 15. Given that Plasticity Index (PI) of local soil = 15 and PI of sand = zero, for a desired PI of 6, the percentage of sand in the mix should be

(a) 70

(b) 60

(c) 40

(d) 30

Q 16. Residual soils are formed by

(a) Glaciers

(b) Wind

(c) Water

(d) None of the above

Q 17. Water content of soil can

(a) Never be greater than 100%

(b) Take values only from 0 % to 100%

(c) Be less than 0 %

(d) Be greater than 100%

Q 18. The submerged density of soil in terms of unit weight of water yw specific gravity G and voids ratio e is given by the expression

(a) $\frac{\Upsilon_w(G+1)}{1+e}$

(b) $\frac{\Upsilon_w(G-1)}{1-e}$

(c) $\frac{\Upsilon_w(G+1)}{1-e}$

(d) $\frac{\Upsilon_w(G-1)}{1+e}$

Q 19. A soil has a bulk density of 22 kN/m3 and water content 10% the dry density of soil is

(a) 18.6 kN/m3

(b) 20.0 kN/m3

(c) 22.0 kN/m3

(d) 23.2 kN/m3

Q 20. If the volume of voids is equal to the volume of solids in a soil mass, then the values of porosity and voids ratio respectively are

(a) 1.0 and 0.0

(b) 0.0 and 1.0

(c) 0.5 and 1.0

(d) 1.0 and 0.5