

Q / Fill the following blanks with appropriate word or phrase.

- 1- pH of water sample can be measuring by two methods which are: and
- 2- For the water sample pH more than 8 we should calibrate the device with buffer of pH and
- 3- Phenolphthalein alkalinity is a type of alkalinity due primarily to the presence of.....or
- 4- In natural water, domestic sewage & industrial waste, acidity is usually due to , and
- 5- Soil organic matter includes ,and
- 6- Porosity can be calculated if and are known.
- 7- To determine water alkalinity if pH more than 8.3, we must add indicator and its color change from to
- 8- A medium textured, well-aggregated soil contains about pore space and is in good condition for plant growth when the pores hold an equal distribution of
- 9- Before each water sampling, the turbidimeter should be calibrated by using standard solution of,and..... NTU
- 10- The main sources of carbon dioxide in the water are and.....
- 11- Phenolphthalein indicator produce pink color when it is added to water with pH
- 12- It is a type of measured acidity in water by titration to a pH of less than 4.5 and by using indicator to determined it.
- 13- The indicator that uses to determine total hardness is called and to determine calcium hardness is called
- 14- Salts of calcium and magnesium in the hard water are as,, and
- 15- Despite of geological formation, other factor that affects the values of total hardness is
- 16- Main components of alkalinity are,and.....

- 17- is hardness that cannot be removed by boiling.
- 18- In laboratory, turbidity is measured by method using a turbidimeter.
- 19- The ability to resist changes in pH by neutralizing acids or bases is called
- 20- Common cations found in hard water include and
- 21-..... is added to the solution in Winkler bottle to reduce the pH and dissolve the precipitate.
- 22- Depending on the indicator, we can divided the acidity intoand.....
- 23- To determine water alkalinity if PH more than 8.3, we must add.....indicator and its color change fromto.....
- 24- Generally, Turbidity can be caused by and.....
- 25-.....and.....are used to measure the PH of a sample.

Q True and False

Litmus paper color changes based on the sample solution that turns blue or red if it is acidic or basic, respectively.

- 2- Water mineral acidity starts from pH 4.5 to 8.3.
- 3- Soil compaction processes increase bulk density and porosity.
- 4- Particle density is the volumetric mass of the solid soil.
- 5- Limestone rock is one source of acidity which formed by the compaction of fossilized coral, shells and bones.
- 6- The Diameter of Sand particles is between 1-2 mm.
- 7- Transect and quadrants are used for plants and non-motile animals.
- 8- Soil organic matter includes all living organisms, fresh residues, and well-decomposed residues.
- 9- Soil compaction processes increases bulk density and porosity.
- 10- hygrometer used for measuring Humidity
- 11- Thermographs function is based on mercury and alcohol.
- 12- Anemometer is used to determine the direction of speed (news).
- 13- Lincoln Index method includes Capture-Mark-Recapture
- 14- Atmospheric pressure is increased as you ascend from the ground toward the sky.

Q/ Define the following:

- 1- Phenolphthalein Alkalinity
- 2- Methyl orange acidity
- 3- Permanent hardness
- 4- Turbidity
- 5- Total Alkalinity
- 6- CO₂ acidity
- 7- Temporary hardness
- 8- Turbidimeter
- 9-COD
- 10-BOD

Q/ Write briefly about the following:

- 2- Methods for softening hard water.
- 3- The main source of carbon dioxide in the water:
- 4- Alkalinity is important to aquatic organisms.
- 5- Moderate acidity in irrigation water is beneficial to alkali soils.
- 6- Write methods for Softening permanent hard water.
- 7- Factors affect turbidity in surface water
- 8- Alkalinity is sometime confused with pH.
- 9- Sources of most of the [H⁺] with chemical reaction.
- 10- Write methods for Softening temporary hard water.
- 11- Compounds that responsible of alkalinity with all indicators & colors.