



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## CIVIL ENGINEERING

### DEFINITIONS AND TERMINOLOGY QUESTION BANK

Course Name	:	<b>ENVIRONMENTAL ENGINEERING</b>
Course Code	:	<b>ACE015</b>
Program	:	<b>B.Tech</b>
Semester	:	<b>VII</b>
Branch	:	<b>Civil Engineering</b>
Section	:	<b>A&amp; B</b>
Academic Year	:	<b>2019- 2020</b>
Course Faculty	:	<b>Ms. K. Anusha Hadassa, Assistant Professor</b>

#### COURSE OBJECTIVES:

<b>The course should enable the students to:</b>	
I	Outline the different sources of water and its per capita demand.
II	Describe the basic characteristics of water and study the procedure for determination
III	Design the water supply lines, water collection and different distribution networks.
IV	Construct and design waste water treatment units such as oxidation ponds, sludge digestion tanks, soak pits etc.

#### DEFINITIONS AND TERMINOLOGY QUESTION BANK

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
<b>UNIT-1</b>						
1	What is the necessity of water supply schemes in the present day community?	Clean water is the BEST way to prevent the spread of the many diseases that can cause havoc in a closely packed population of humans. Diseases such as typhoid, cholera etc., as well as diseases that are caused by poor hygiene such as salmonella, e coli etc. Clean water and hand washing stop the spread of disease within a household.	Understand	CO 1	CLO 3	ACE015.03
2	What is the purpose of water distribution system?	The purpose of distribution system is to deliver water to consumer with appropriate quality, quantity and pressure. Distribution system is used to describe collectively the facilities used to supply water from its source to the point of usage.	Remember	CO 1	CLO 1	ACE015.01

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3	Describe of about layouts of distribution network?	The distribution pipes are generally laid below the road pavements, and as such their layouts generally follow the layouts of roads. There are, in general, four different types of pipe networks; any one of which either singly or in combinations, can be used for a particular place. Grid, Ring, Radial and De ad End System.	Remember	CO 1	CLO 1	ACE015.01
4	Explain about health environment.	Public health has always been a major factor influencing the ways how water supply has been solved by societies. The source of water supply was chosen according to its odorless water e.g. from springs or wells was preferred.	Remember	CO 1	CLO 1	ACE015.01
5	What is sample space?	Water treatment is the process that improves the quality of water to make it more acceptable for a specific end-use. The end use may be drinking, industrial water supply, irrigation, river flow maintenance, water recreation or many other uses, including being safely returned to the environment. Water treatment removes contaminants and undesirable components.	Remember	CO 1	CLO 1	ACE015.01
6	What is water treatment process?	Water treatment is any process that quality of water to make it more acceptable for a specific end-use.	Remember	CO 1	CLO 3	ACE015.03
7	Describe hydrological cycle and water quality?	It maintains a balance between evaporation, precipitation, the transport of water vapor in the atmosphere from the sea to the land and run-off from land to sea. About two-thirds of the Earth's surface is covered with water.	Remember	CO 1	CLO 1	ACE015.01
8	What are suspended solids?	Suspended solids refers to small solid particles which remain in suspension in colloid or due to the motion of the water, suspended solids can removed by the sedimentation because of their comparatively large size. It is used as one indicator of water quality.	Remember	CO 1	CLO 1	ACE015.01
9	What is turbidity?	Turbidity is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye. Turbidity is a key test of water quality.	Remember	CO 1	CLO 1	ACE015.01

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10	Define hardness of water?	The simple definition of water hardness is the amount of dissolved calcium and magnesium in the water. Hard water is high in dissolved minerals, largely calcium and magnesium. When hard water is heated, such as in a home water heater, solid deposits of calcium carbonate can form.	Remember	CO 1	CLO 1	ACE015.01
11	What is storage capacity?	Storage capacity refers to how much disk space one or more storage devices provides. It measures how much data a computer system may contain. For an example, a computer with a 500GB hard drive has a storage capacity.	Remember	CO 1	CLO 3	ACE015.03
12	What is favorable event?	Drinking water quality standards describes the quality parameters set for drinking water. Despite the truth that every human on this planet needs drinking water to survive and that water may contain many harmful constituents, there are no universally recognized and accepted international standards for drinking water.	Remember	CO 1	CLO 1	ACE015.01
13	What is infiltration gallery?	Infiltration galleries may be used to collect water from the aquifer underlying a river. Water from an infiltration gallery has the advantage of bank filtration to reduce the water treatment requirements for a surface withdrawal. An infiltration gallery may also be the best way to withdraw water from a thin aquifer or lens of fresh water overlying saline water.	Understand	CO 1	CLO 1	ACE015.01
14	What is confined aquifer?	A confined aquifer is an aquifer below the land surface that is saturated with water. Layers of impermeable material are both above and below the aquifer.	Remember	CO 1	CLO 2	ACE015.02
15	What is unconfined aquifer?	Unconfined aquifer is an aquifer whose upper water surface is at atmospheric pressure, and thus is able to rise and fall space associated with a real number.	Remember	CO 1	CLO 3	ACE015.03
<b>UNIT-II</b>						
1	Define water treatment.	Water treatment is any process that improves the quality of water to make it more acceptable for a specific end-use.	Remember	CO 2	CLO 5	ACE015.05

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
2	Define sedimentation	The natural process in which material is carried to the bottom of a body of water and forms a solid layer.	Remember	CO 2	CLO 5	ACE015.05
3	what is uniform setting velocity	The gravitational parameter is the ratio of the terminal velocity of the particles in still flow to the characteristic velocity of the fluid.	Understand	CO 2	CLO 7	ACE015.07
4	Explain about surface loading.	Surface loading is one of the most important factors affecting the effectiveness of the sedimentation process. The surface loading rate is used to determine if the sedimentation tanks and clarifiers are under or over loaded.	Understand	CO 2	CLO 9	ACE01509
5	What is Jar test?	Jar testing is a pilot-scale test of the treatment chemicals used in a particular water plant. It simulates coagulation or flocculation process in a water treatment plant and helps operators determine if they are using the right amount of treatment chemicals, and, thus, improves the plant's performance.	Understand	CO 2	CLO 9	ACE015.09
6	Define rapid gravity filters.	Rapid sand filter or rapid gravity filter is a type of filter used in water purification and is commonly used in municipal drinking water facilities as part of a multiple-stage treatment system	Remember	CO 2	CLO 5	ACE015.05
7	What are multimedia filters?	Multimedia filter is used to reduce the level of SDI (Silt Density Index), TSS in the incoming feed water. Suspended solids consist of small particles such as silt, clay, grit, organic matter, algae and other microorganisms.	Remember	CO 2	CLO 5	ACE015.05
8	Define chlorine demand.	Chlorine demand is the difference between the amount of chlorine added to water or wastewater and the amount of residual chlorine remaining after a given contact time. Chlorine demand may change with dosage, time, temperature, pH, and nature and amount of the impurities in the water.	Remember	CO 2	CLO 7	ACE015.07
9	What are distribution systems	It is defined as the sequential flow of procedures, system sand activities which are designed and linked to facilitate and monitor the movement of goods and services from the source to the consumer.	Remember	CO 2	CLO 5	ACE015.05

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10	Define hardy cross method.	The Hardy Cross method is an iterative method for determining the flow in pipe network systems where the inputs and outputs are known, but the flow inside the network is unknown	Remember	CO 2	CLO 7	ACE015.07
11	What are service reservoirs?	Distribution reservoirs, also called service reservoirs, are the storage reservoirs, which store the treated water for supplying water during emergencies (such as during fires, repairs, etc.) and also to help in absorbing the hourly fluctuations in the normal water demand.	Remember	CO 2	CLO 9	ACE015.09
12	What are sluice valves?	Gate valve, also known as a sluice valve, is a valve that opens by lifting a barrier (gate) out of the path of the fluid. Gate valves require very little space along the pipe axis and hardly restrict the flow of fluid when the gate is fully opened.	Remember	CO 2	CLO 7	ACE015.07
13	What are scour valves?	Scour valves are located at low points or between valve sections of the pipeline. Their function is to allow periodic flushing of the lines to remove sediment and to allow the line to be drained for maintenance and repair work	Remember	CO 2	CLO 9	ACE015.09
14	What is velocity?	The velocity of an object is the rate of change of its position with respect to a frame of reference, and is a function of time. Velocity is equivalent to a specification of an object's speed and direction of motion.	Remember	CO 2	CLO 9	ACE015.09
15	What is jar test?	Jar testing is a pilot-scale test of the treatment chemicals used in a particular water plant. It simulates coagulation, process in a water treatment plant and helps operators determine if they are using the right amount of treatment chemicals, and, thus, improves the plant.	Remember	CO 2	CLO 9	ACE015.09
<b>UNIT-III</b>						
1	What is water carriage system?	The water carriage system is the modern method of conveyance of sewage. In this system, water is used as a medium for conveying the sewage to the treatment plant and final disposal.	Understand	CO 3	CLO 13	ACE015.013

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
2	Define sewage system?	The relationship between only two variables is known as simple correlation Sewage (or domestic wastewater or municipal wastewater) is a type of wastewater that is produced by a community of people. It is characterized by volume or rate of flow, physical condition, chemical and toxic constituents, and its bacteriologic status.	Remember	CO 3	CLO 13	ACE015.013
3	What are storm water estimators?	Storm water, also spelled storm water, is water that originates during precipitation events and snow/ice melts. Storm water can soak into the soil (infiltrate), be held on the surface and evaporate, or runoff and end up in nearby streams, rivers, or other water bodies.	Remember	CO 3	CLO 11	ACE015.011
4	Define decomposition of sewage?	The organic matter which can be decomposed by bacteria under biological action is called biodegradable organic matter. The decomposition of such organic matter takes place through the agency of different types of bacteria viz., aerobic bacteria, anaerobic bacteria and facultative bacteria.	Remember	CO 3	CLO 13	ACE015.013
5	What is multiple correlations.	The relationship between more than two variables is known as multiple correlation	Remember	CO 3	CLO 11	ACE015.011
6	What is biochemical oxygen demand?	Biochemical Oxygen Demand or Biological Oxygen Demand is a measurement of the amount of dissolved oxygen (DO) that is used by aerobic microorganisms.	Understand	CO 3	CLO 13	ACE015.013
7	What is chemical oxygen demand?	The chemical oxygen demand (COD) is an indicative measure of the amount of oxygen that can be consumed by reactions in a measured solution. It is commonly expressed in mass of oxygen consumed over volume of solution which in SI units is milligrams per liter (mg/L)	Remember	CO 3	CLO 15	ACE015.015
8	What is catch basin?	A catch basin is an inlet to the storm drain system that typically includes a grate or curb inlet where storm water enters the catch basin and a sump to capture sediment, debris and associated pollutants.	Understand	CO 3	CLO 13	ACE015.013
9	What is flushing tank?	Tank holding a supply of water or sewage for periodically flushing out a sewer.	Remember	CO 3	CLO 15	ACE015.015

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
10	What is house drainage?	The horizontal drain in a basement that receives the waste discharge from stacks and extends a few feet outside the foundation. called also building drain	Remember	CO 3	CLO 13	ACE015.013
11	What are sanitary fittings?	Sanitary process piping and fittings (also known as hygienic piping or high purity piping) is used almost exclusively in the food, beverage and personal care industries.	Remember	CO 3	CLO 13	ACE015.013
12	What is one line plumbing system?	This plumbing system, two pipes are installed. W.Cs and urinals are connected to vertical soil pipe baths, kitchens, basins etc. are connected to another separate vertical waste pipe.	Remember	CO 3	CLO 15	ACE015.015
13	What is two line plumbing system?	In this plumbing system, two pipes are installed. W.Cs and urinals are connected to vertical soil pipe baths; kitchens, basins etc. are connected to another separate vertical waste pipe.	Remember	CO 3	CLO 15	ACE015.015
14	What is sanitary filtration?	Sanitary process piping and fittings (also known as hygienic piping or high purity piping) is used almost exclusively in the food, beverage, biopharmaceutical and personal care industries.	Remember	CO 3	CLO 15	ACE015.015
15	What is catch basin?	A catch basin is an inlet to the storm drain system that typically includes a grate or curb inlet where storm water enters the catch basin and a sump to capture sediment, debris.	Remember	CO 3	CLO 11	ACE015.011
<b>UNIT-IV</b>						
1	What are water treatment plans?	It is any process that improves the quality of water to make it more acceptable for a specific end-use.	Remember	CO 4	CLO 16	ACE015.016
2	What are grit chambers?	Grit chambers are long narrow tanks that are designed to slow down the flow so that solids such as sand, coffee grounds and eggshells will settle out of the water.	Remember	CO 4	CLO 16	ACE015.016
3	What are skimming tankers?	A skimming tank is a chamber so arranged that the floating matter like oil, fat, grease etc., rise and remain on the surface of the waste water (Sewage) until removed, while the liquid flows out continuously under partitions or baffles	Remember	CO 4	CLO 16	ACE015.016

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4	What is sedimentation tank?	A sedimentation tank allows suspended particles to settle out of water or wastewater as it flows slowly through the tank, thereby providing some degree of purification. A layer of accumulated solids, called sludge, forms at the bottom of the tank and is periodically removed	Remember	CO 4	CLO 16	ACE015.016
5	What is one line plumbing system?	This plumbing system, two pipes are installed. W.Cs and urinals are connected to vertical soil pipe baths, kitchens, basins etc. are connected to another separate vertical waste pipe.	Remember	CO 4	CLO 16	ACE015.016
6	What is house drainage?	The process of choosing samples from the population	Remember	CO 4	CLO 16	ACE015.016
7	What are distribution systems	The natural process in which material is carried to the bottom of a body of water and forms a solid layer	Remember	CO 4	CLO 16	ACE015.016
8	What are grit chambers?	Grit chambers are long narrow tanks that are designed to slow down the flow so that solids such as sand, coffee grounds and eggshells will settle out of the water.	Remember	CO 4	CLO 16	ACE015.016
9	What is two line plumbing system?	In this plumbing system, two pipes are installed. W.Cs and urinals are connected to vertical soil pipe baths; kitchens, basins etc. are connected to another separate vertical waste pipe.	Remember	CO 4	CLO 16	ACE015.016
10	What is house drainage?	The horizontal drain in a basement that receives the waste discharge from stacks and extends a few feet outside the foundation called also building drain.	Remember	CO 4	CLO 17	ACE015.017
11	What is sanitary filtration?	Sanitary process piping and fittings (also known as hygienic piping or high purity piping) is used almost exclusively in the food.	Remember	CO 4	CLO 17	ACE015.017
12	Define about confined aquifer?	A confined aquifer is an aquifer below the land surface that is saturated with water. Layers of impermeable material are both above and below the aquifer.	Remember	CO 4	CLO 17	ACE015.017
13	What is self-purification?	When the wastewater or effluents is discharged into natural body of water, the receiving waters gets polluted due to the waste products, present in the sewage effluent is self-purification	Remember	CO 4	CLO 17	ACE015.017



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14	Define primary treatment of water.	Primary treatment consists of temporarily holding the sewage in a quiescent basin where heavy solids can settle to the bottom while oil, grease and lighter solids float to the surface.	Remember	CO 4	CLO 17	ACE015.017
15	What are trickling filters?	A trickling filter is a type of wastewater treatment system. It consists of a fixed bed of rocks, coke, gravel, slag, polyurethane foam, sphagnum peat moss.	Remember	CO 4	CLO 17	ACE015.017
<b>UNIT-V</b>						
1	Define oxidation ponds.	Oxidation ponds, also called lagoons or stabilization ponds, are large, they are designed to treat wastewater through the interaction of sunlight, bacteria, and algal.	Remember	CO 5	CLO 21	ACE015.021
2	What is sludge treatment?	Sewage sludge treatment describes the processes used to manage and dispose of sewage sludge produced during sewage treatment. Sludge is mostly water with lesser amounts of solid material removed from liquid sewage.	Remember	CO 5	CLO 21	ACE015.021
3	Define soak pit?	Soak pit, also known as a soak away or leach pit, is a covered, porous-walled chamber that allows water to slowly soak into the ground.	Remember	CO 5	CLO 21	ACE015.021
4	Define sewage farms?	Sewage farms use sewage for irrigation and fertilizing agricultural land. The practice is common in warm, arid climates where irrigation is valuable while sources of fresh water.	Remember	CO 5	CLO 23	ACE015.023
5	Define sludge treatment.	The residue that accumulates in sewage treatment plants is called sludge. Sewage sludge is the solid, semisolid, or slurry residual material that is produced as a by-product of wastewater treatment processes.	Understand	CO 5	CLO 21	ACE015.021
6	Define about sludge digestion tank.	Sludge digestion is a biological process in which organic solids are decomposed into stable substances. Digestion reduces the total mass of solids, destroys pathogens, and makes it easier to dewater or dry the sludge.	Understand	CO 5	CLO 21	ACE015.021
7	Define about sewage farming	Sewage farms use sewage for irrigation and fertilizing agricultural land. The practice is common in warm, arid climates where irrigation is valuable while sources of fresh water are scarce.	Understand	CO 5	CLO 22	ACE015.022

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
8	What is self-purification of rivers?	The self-purification process of water bodies or processes involving biological, chemical and physical processes working simultaneously on biological pollutants.	Understand	CO 5	CLO 23	ACE015.023
9	What is biochemical oxygen demand?	Biochemical Oxygen Demand is the amount of dissolved oxygen needed by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period.	Understand	CO 5	CLO 23	ACE015.023
10	What is water treatment plant?	Water treatment is any process that improves the quality of water to make it more acceptable for a specific end-use. The end use may be drinking, industrial water supply, irrigation, river flow maintenance.	Understand	CO 5	CLO 23	ACE015.023
11	What are scour valves?	Scour valves are located at low points or between valve sections of the pipeline. Their function is to allow periodic flushing of the lines to remove sediment and to allow the line to be drained for maintenance and repair work.	Remember	CO 5	CLO 21	ACE015.021
12	What is the purpose of water distribution system?	The purpose of distribution system is to deliver water to consumer with appropriate quality, quantity and pressure. Distribution system is used to describe collectively the facilities used to supply water from its source to the point of usage.	Remember	CO 5	CLO 22	ACE015.022
13	What is water carriage system?	The water carriage system is the modern method of conveyance of sewage. In this system, water is used as a medium for water.	Remember	CO 5	CLO 23	ACE015.023
14	What is the significance for small samples	The study of test of significance is the deviation between the observed sample statistic and the hypothetical parameter value is significant and the deviations between two sample statistics are significant.	Remember	CO 5	CLO 21	ACE015.021
15	What is unconfined aquifer?	Unconfined aquifer is an aquifer whose upper water surface (water table) is at atmospheric pressure, and thus is able to rise and fall space associated with a real number	Remember	CO 5	CLO24	ACE015.024

Signature of the Faculty

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