

University of Mumbai
Examination 2020 under cluster ----(Lead college Short name)

Program: Civil Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code and Course Name: CE-C 504- Environmental Engineering 1

Time: 1 hour

Max. Marks: 50

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Note to the students: - All Questions are compulsory and carry equal marks.

Q1.	The cost of water treatment is usually highest for which of the following sources?
Option A:	Groundwater
Option B:	River water
Option C:	Lake water
Option D:	Seawater
Q2.	The most common location for providing screens in water supply projects is:
Option A:	Entry point at water intake
Option B:	Before sedimentation unit at water treatment plant
Option C:	First unit at water treatment plant
Option D:	After aeration unit at water treatment plant
Q3.	If the level of source of water is higher than that of the place of consumption, the system adopted for supplying water is
Option A:	Pumping system
Option B:	Gravity system
Option C:	Combined pumping and gravity system
Option D:	Grid iron system
Q4.	Firefighting demand for a city/town is usually estimated, based on:
Option A:	Population
Option B:	Area of the city
Option C:	Tropical areas
Option D:	LPCD rate
Q5.	The process of nutrient enrichment is termed as,
Option A:	Limiting nutrients
Option B:	Eutrophication
Option C:	Enrichment
Option D:	Schistosomiasis

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Q6.	Which of the following is not a water borne disease?
Option A:	Scabies
Option B:	Typhoid
Option C:	Cholera
Option D:	Hepatitis
Q7.	All of the following are considered toxic metal pollutants EXCEPT
Option A:	Chromium
Option B:	Cadmium
Option C:	Potassium
Option D:	Mercury
Q8.	In a rapid sand filter
Option A:	Raw water from the source is supplied
Option B:	disinfected raw water is supplied
Option C:	Raw water passed through coagulation tank is supplied
Option D:	any one of the above
Q9.	If the population of the city is 2 lacs and average water consumption is 240 lpcd, then the water requirement of the city in million liters is:
Option A:	108 mld
Option B:	72 mld
Option C:	48 mld
Option D:	40 mld
Q10.	Which of the following ions are responsible for carbonate hardness?
Option A:	Carbonates & bicarbonates of calcium & magnesium
Option B:	Bicarbonates of sodium & potassium
Option C:	Carbonates of calcium & magnesium
Option D:	Dissolved carbon dioxide
Q11.	Pressure filters are not suited for
Option A:	swimming pools
Option B:	railway stations
Option C:	individual industries
Option D:	Public water supplies
Q12.	Particles of size around 1 micron (10^{-6}) size are best removed by
Option A:	Plain sedimentation
Option B:	Filtration
Option C:	Chemical precipitation
Option D:	Chemical coagulation

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Q13.	The process of removal of excess chlorine from water is _____
Option A:	Plain chlorination
Option B:	Dechlorination
Option C:	Super chlorination
Option D:	Double chlorination
Q14.	Which is not the zone in the sedimentation tank?
Option A:	Inlet zone
Option B:	Outlet zone
Option C:	Mixing zone
Option D:	Sludge zone
Q15.	Tube settlers are sometimes installed in sedimentation basins to,
Option A:	allow additional mixing of coagulants to occur
Option B:	prevent plug flows
Option C:	improve particle removal
Option D:	to prevent cross current
Q16.	Slow sand filter is efficient to remove the bacteria's from the raw water to an extent of
Option A:	50%
Option B:	70%
Option C:	85%
Option D:	99%
Q17.	Zeolites are complex compound of _____,
Option A:	Aluminium and lime
Option B:	Silica and soda
Option C:	Aluminium, silica and soda
Option D:	Lime and soda
Q18.	According to which of the following, organism destroyed by disinfection is proportional to organism remaining?
Option A:	Hazens equation
Option B:	Chicks law
Option C:	Darcy's law
Option D:	Rose equation
Q19.	In which process of water softening, the chemicals are added to remove hardness from water?
Option A:	Lime soda process
Option B:	Zeolite process
Option C:	Boiling
Option D:	Demineralization process

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Q20.	Which components are responsible for temporary hardness in water?
Option A:	Sulfates, Chlorides
Option B:	Sulfates, Chlorides, nitrates
Option C:	Carbonates and bicarbonates
Option D:	Sulfates and carbonates
Q21.	Disinfection of water helps in,
Option A:	Removing turbidity
Option B:	Removing hardness
Option C:	Killing pathogenic bacteria
Option D:	Complete sterilization
Q22.	The time period for which the water is stored in a sedimentation tank is called,
Option A:	Time of flow
Option B:	Settling velocity
Option C:	Detention time
Option D:	Settling time
Q23.	Calculate the quantity of alum required in kg to treat 10 mld water at the treatment plant where the alum dose required is 12 mg/lit.
Option A:	120kg
Option B:	180 kg
Option C:	100 kg
Option D:	50kg
Q24.	Which of these membrane processes are likely to have highest degree of rejection for water contaminants?
Option A:	Micro filtration
Option B:	Nano filtration
Option C:	Ultra-Filtration
Option D:	Reverse Osmosis
Q25.	A chlorination unit treating 26 MLD water feeds 32 kg chlorine daily. If the chlorine demand of water is 1 mg/L, the residual chlorine levels in treated water would be:
Option A:	0.77 mg/L
Option B:	0.23 mg/L
Option C:	0.32 mg/L
Option D:	1.23 mg/L