University of Mumbai

Program: **Civil Engineering**
Curriculum Scheme: Rev 2019
Class: TE Semester VI
Course Code: CEC604   and Course Name: Environmental Engg

SAMPLE QUESTION BANK

	MCQ (2 MARKS EACH)
1	Which of the following intake structure used for the small works
Option A:	Sluiceway
Option B:	Simple Submerged Intake
Option C:	Wet Intake towers
Option D:	Dry Intake towers
2	What is the size of the coarse screen used in pretreatment of water?
Option A:	25mm
Option B:	50mm
Option C:	75mm
Option D:	100mm
3	Identify the incorrect statement regarding aeration process
Option A:	It removes taste and odor
Option B:	It increases the dissolved oxygen content of water
Option C:	It increases the carbon dioxide content of water
Option D:	It is used for mixing chemicals with water
4	In which type of aerator, the flow of water is divided into fine streams and small droplets?
Option A:	Cascade aerator
Option B:	Inclined apron aerator
Option C:	Spray aerator
Option D:	Gravel bed aerator

5	What is formed when coagulant is added to water?
Option A:	Scum
Option B:	Soap
Option C:	Bubbles
Option D:	Floc
6	What indicates the permanent hardness when alum is added to water?
Option A:	$Al(OH)_3$
Option B:	$CaSO_4$
Option C:	CO_2
Option D:	$Ca(OH)_3$
7	Why Alum is preferred over other coagulants?
Option A:	It is easy to dewater the sludge formed
Option B:	It imparts corrosiveness to water
Option C:	It reduces taste and odor in addition to turbidity
Option D:	The time required for floc formation is less
8	Which water treatment process is done after filtration of water?
Option A:	Primary sedimentation
Option B:	Disinfection
Option C:	Secondary sedimentation
Option D:	Flocculation
9	Which of the following is wrong regarding disinfection?
Option A:	It should be readily available at reasonable cost
Option B:	Its method of application should be simple
Option C:	It should render the water toxic for its intended use
Option D:	It should act as safeguard against re-contamination

10	Which of the following is a chemical method of disinfection?
Option A:	Disinfection by heat
Option B:	Disinfection by light
Option C:	Metal ions
Option D:	Metal ions, Alkalis and acid
11	Which minor method of disinfection is effective in complete sterilization of water?
Option A:	Boiling method
Option B:	Excess lime treatment
Option C:	Silver treatment
Option D:	Ultraviolet ray treatment
12	In which action of filtration, particles coarser than the void size is arrested?
Option A:	Mechanical Straining
Option B:	Sedimentation
Option C:	Biological mechanism
Option D:	Electrolytic action
13	In which action of filtration, removal of particulate matter takes place?
Option A:	Mechanical Straining
Option B:	Sedimentation
Option C:	Biological mechanism
Option D:	Electrolytic action
14	In which type of filter, rate of filtration is low?
Option A:	Slow sand filter
Option B:	Rapid sand filter
Option C:	Gravity filter
Option D:	Pressure filter

15	The minimum number of filter beds in the slow sand filter is _____
Option A:	1
Option B:	2
Option C:	3
Option D:	4
16	Hardness of the water in the lime soda process is reduced to
Option A:	10-15ppm
Option B:	15-30ppm
Option C:	30-35ppm
Option D:	35-40ppm
17	Lime soda process removes _____ from the water.
Option A:	Minerals
Option B:	Mineral acids
Option C:	Mineral alkaline
Option D:	Mineral complexes
18	The basis of reverse osmosis is _____
Option A:	Osmotic pressure is greater than the hydrostatic pressure
Option B:	Osmotic pressure is equal to the hydrostatic pressure
Option C:	Hydrostatic pressure is greater than the osmotic pressure
Option D:	Osmotic pressure does not exist
19	The process of reverse osmosis is also known as _____
Option A:	Hyper-filtration
Option B:	Double-filtration
Option C:	Double-osmosis
Option D:	Hyper-osmosis

20	What is the minimum diameter of pipes used for drainage of waste water?
Option A:	50 mm
Option B:	75 mm
Option C:	100 mm
Option D:	105 mm
21	What is the wastewater from kitchen sinks called?
Option A:	Grey water
Option B:	Black water
Option C:	Yellow water
Option D:	Brown water
22	Which of the following is the basic indicator of river health
Option A:	BOD
Option B:	COD
Option C:	DO
Option D:	ThOD
23	On which of following self purification process depends
Option A:	Volume
Option B:	Flow rate
Option C:	Temp.
Option D:	Species
24	What is the minimum DO is required for surial of Life
Option A:	2 mg/lit
Option B:	8 mg/lit
Option C:	10 mg/lit
Option D:	5mg/lit

25	Which of the following is an anaerobic process for treating sewage?
Option A:	oxidation pond
Option B:	imhoff tank
Option C:	oxidation ditch
Option D:	rotating biological contactors
26	The minimum design depth of oxidation pond is
Option A:	0.5m
Option B:	1m
Option C:	1.5m
Option D:	2 m
27	Which of the following is called the secondary air pollutant?
Option A:	PANs
Option B:	Ozone
Option C:	Carbon monoxide
Option D:	Nitrogen Dioxide
28	What is the dB of threshold of pain?
Option A:	100
Option B:	115
Option C:	126
Option D:	146
29	Which of the following plans is used as a waste management plan?
Option A:	Plan for reuse
Option B:	The integrated plan
Option C:	Plan for recycling
Option D:	Plan for reducing

30	Which of the following solid wastes describes the term 'Municipal Solid Waste
Option A:	Toxic
Option B:	Hazardous
Option C:	Non-toxic
Option D:	Non-hazardous

	05 MARKS QUESTIONS
1	Explain the various types of intake structures.
2	Explain classification of distribution system with neat sketch.
3	Differentiate between rapid gravity filter and slow sand filters.
4	Differentiate between single pipe and single stack pipe system along with sketch.
5	Explain the mechanism of flocculation and coagulation.
6	Explain different type of Oxidation Ponds
7	Define the term optimum coagulant dosage. Explain jar test
8	Explain Activated Sludge Process in detail.
9	Explain different methods of water softening.
10	Write down the working principal of Grit Chamber
11	How will you judge the treatment process using BOD/COD ratio?
12	Explain in detail self-purification capacity of stream.
13	Explain the various taps used for the building in detail.
14	Write down the effect of Air pollution on Human beings.
15	Enlist the effect of Noise pollution on Human Health.

	10 MARKS QUESTIONS
1	Explain the physical and chemical characteristics of water.
2	Explain the flow sheet, the treatment of river water for drinking purpose in the water treatment plant. Also explain the significant of each unit.
3	Explain the principle underlying tube settlers and practical utility of tube settlers.
4	A rectangular tank with length of 20m, width of 8m and depth of 5m is to treat 2.40×10^5 MLD. Calculate (1) Detention period of tank (2) Average flow velocity through tank (3) S.O.R

5	Design a rapid sand filter to treat 2.25 MLD water supply for a town. Given (i) filter work for 12 hours a day (ii) rate of filtration is 1250Ml/d/ha.
6	Explain why chlorine is considered necessary even when filtration is provided. Explain break point chlorination with diagram.
7	Draw the flow diagram of sewage treatment plant for your area. And also explain the function of each unit.
8	Design a septic tank for a Boy's Hostel having capacity 500 with average daily sewage flow is 80 lit/head. The detention time is 24hrs. Cleaning period is 6 months. Also draw sectional sketch showing all the details
9	Design the size of high rate trickling filter foR the following data; Sewage Flows = '5'MLD Recirculation Ratio = 1.5 BOD_5 of raw sewage = '250'mg/lit BOD removal in PST = 25% The final effluent BOD_5 desired = 30 mg/lit.

10	Design the conventional Activated Sludge plant to treat domestic sewage, given the following data,
	
	    i) Population = 36,000
	    ii) Average Sewage Flow = 180 lpcd
	    iii) BOD of Sewage = 240 mg/lit
	    iv) BOD Removal in Primarily Clarifier = 25 %
	    v) Ovearall BOD Removal = 85 %
	
	Based on the information above determine
	    1) Volume of Aeration Tank
	    2) Aeration Period
	    3) Sludge Retention Time
	    4) Tank Dimension

11	Calculate 2 day 37^0C BOD of sewage sample whose 5day 200C BOD is 180mg/lit. Assume K_D at 20^0C as 0.1
12	Design a sewer to serve a population of 35,000; the daily per capita water supply allowing being is 160 lits on which 80- percentage turns into sewage. The slope available for sewer is 1 in 600. The sewer is design to carry to design 4 times dry weather flow when running full. what would be the velocity of sewer when it is

	running full.
13	Explain the Rain Water Harvesting.
14	Enlist all the devices used to control the air pollution. Explain the working of any one in detail.
15	Explain why solid waste management is necessary. What are the functional elements of solid waste management?