SEMESTER: 06

ENVIRONMENTAL ENGINEERING (020030603)

CHAPTER -1 INTRODUCTION

1	A well oxidized sewage contains nitrogen mainly as…			
	A.	Nitrates	B.	Free ammonia
	C.	nitrites	D.	None
2	The pH value of fresh sewage is usually			
	A.	=7	B.	>7
	C.	<7	D.	=0
3	For the survival of fish in river stream minim um DO is _____ppm			
	A.	3	B.	4
	C.	5	D.	10
4	BOD5 is taken at _____ °C			
	A.	0	B.	15
	C.	20	D.	25
5	Kjedahl nitrogen is a mixture of			
	A.	Ammonia and nitrogen	B.	Organic nitrogen and ammonia
	C.	Nitrogen and organic nitrogen	D.	All the above
6	For the COD test of sewage, organic matter i s oxidised by K2Cr2O7 in the presence of			
	A.	H2SO4	B.	HNO3
	C.	HCL	D.	None
7	BO D for the first 20 days in generally referred to			
	A.	Carbonaceous demand	B.	calcium demand
	C.	Nitrogenous demand	D.	None
8	The sewage treatment in septic tanks is due to			
	A.	Anaerobic decomposition	B.	Aerobic decomposition
	C.	Parasitic decomposition	D.	None
9	Water content of sewage is about			
	A.	90 %	B.	95 %
	C.	99 %	D.	9.9 %
10	Wholesome water is the one which doesn't co ntai n…			

	A.	Pathogenic bacteria	B.	Suspended matter quantity is harmful to man
	C.	Dissolved matter quantity is harmful to man	D.	All the above
11	The suspended solids present in the water may give colour to water which is known as			
	A.	Apparent colour	B.	True colour
	C.	both	D.	none
12	Drinking water will be safe if its BOD is			
	A.	25	B.	10
	C.	5	D.	0
13	Tintometer is the instrument which is used to measure which physical quality of water.			
	A.	Odour	B.	Conductivity
	C.	Turbidity	D.	Colour
14	Colour of water contributed by dissolved soli d is			
	A.	Apparent colour	B.	True colour
	C.	colour	D.	Both b and c
15	The amount of oxygen consumed by the aerobic bacteria which cause the aerobic bio logical decomposition of sewage, is known			
	A.	Bio-Chemical Oxygen Demand (B.O.D.)	B.	Dissolved Oxygen (D.O.)
	C.	Chemical Oxygen Demand (C.O.D.)	D.	None
16	The average temperature of sewage in India, is___ _____°C			
	A.	10	B.	15
	C.	20	D.	25
17	The standard B.O.D. of water is taken for_____ days			
	A.	1	B.	5
	C.	25	D.	14
18	The true colour of water is measured on			
	A.	Platinum cobalt scale	B.	Silica scale
	C.	Nickel scale	D.	all
19	The following is the physical characteristic of sewage			
	A.	Turbidity	B.	Odour
	C.	Colour	D.	All the above

20	In sewage having fully oxidized organic matt er, the nitrogen exists in the form of			
	A.	Nitrites	B.	Free ammonia
	C.	Nitrates	D.	Aluminoid nitrogen
21	Pick up the correct statement from the following:			
	A	Turbidity is more in strong sewage	B	The sewage omits offensive odours after four hours
	C	The black colour indicates septic sewage	D	All the above
22	If the pH value of sewage is 7			
	A	It is acidic	B	It is neutral
	C	It is alkaline	D	None of these
23	In sewers the gas generally found, is			
	A	Hydrogen sulphide (H2S)	B	Carbon dioxide (CO2)
	C	Methane (CH4)	D	All the above
24	The polluted water is one which			
	A.	Contains pathogenic bacteria	B.	Consists of undesirable substances rendering it unfit for drinking and domestic use
	C.	Is safe and suitable for drinking and domestic use	D.	Is contaminated
25	The correct relation between theoretical oxygen demand (TOD), Biochemical oxygen demand (BOD) and Chemical oxygen demand (COD) is given by			
	A.	TOD > BOD > COD	B.	BOD > COD > TOD
		TOD > COD > BOD	D.	COD > BOD > TOD
26	Turbidity of raw water is a measure of			
	A.	Suspended solids	B.	Acidity of water
	C.	B.O.D.	D.	None of these
27	The average domestic consumption under normal conditions in an Indian city per day per person, is_____litres			
	A.	105	B.	115
	C.	135	D.	125
28	Water may not contain much impurity if its s ource is			
	A.	Reservoirs	B.	Stream flowing in plains
	C.	Lakes in lower regions	D.	Spring along hill slopes

29	Select the correct statement.			
	A.	5 day BOD is the ultimate BOD.	B.	5 day BOD is greater than 4 day BOD keeping other conditions same.
	C.	5 day BOD is less than 4 day BOD keeping other conditions same.	D.	BOD does not depend on time.
30	The rate of BOD exerted at any time is			
	A.	directly proportional to BOD satisfied	B.	directly proportional to BOD remaining
	C.	inversely proportional to BOD satisfied	D.	inversely proportional to BOD remaining
31	The size of suspended solids lies in the range of _____			
	A.	10-3 – 10-6 mm	B.	103 – 106 mm
	C.	10-1 – 10-3 mm	D.	101 – 103 mm
32	Identify the correct relation between the following?			
	A.	Dissolved solid = Total solid + Suspended solid	B.	Dissolved solid = Total solid – Suspended solid
	C.	Total solid = Dissolved solid / Suspended solid	D.	Dissolved solid = Suspended solid – Total solid
33	What is the full form of NTU in context with turbidity?			
	A.	Number of transfer unit	B.	Neurological turbidity unit
	C.	Nephelometric turbidity unit	D.	Network terminal unit
34	Turbidity in water is caused by which of these following?			
	A.	Total dissolved solids	B.	Suspended solids
	C.	Ions	D.	Heavy metals
35	Quality of water is said to be good if it is			
	A.	Free from suspended matter	B.	Colourless
	C.	Free from pathogenic organism	D.	All the above
36	What is the role of chlorine in water treatment?			
	A.	To remove hardness	B.	To remove ions
	C.	As coagulant agent	D.	To remove bacteria
37	_____ is determined by measuring the dissolved oxygen used during the chemical oxidation of organic matter in 3 hours.			
	A.	COD	B.	BOD

	C.	TOD	D.	TOC
38	Which of these is the used as the indicator when the titration is carried out to determine the amount of COD present in a sample.			
	A.	Methyl Orange	B.	Methyl blue
	C.	Ferroin	D.	Phenolphthalein
39	What is the temperature at which MPN test is performed?			
	A.	35 °C	B.	37 °C
	C.	40 °C	D.	45 °C
40	What is the ratio of BOD/COD in untreated waste?			
	A.	1-3	B.	0.3-0.8
	C.	0.1-0.2	D.	3-5
41	Sus pended solids are measured by which of t he following?			
	A.	Turbidity rod	B.	Gravimetric test
	C.	Chromatography	D.	Jackson’s turbidity meter
42	What percentage of solids does wastewater contain?			
	A.	0.5%	B.	0.1%
	C.	1%	D.	5%
43	The range of temperature of water that is required to do the temperature test is ____			
	A.	10-25 °C	B.	0-250 °C
	C.	10-300 °C	D.	20-300 °C
44	Which of the following statement is wrong regarding permanent hardness?			
	A.	It is also called carbonate hardness	B.	It is due to the presence of sulphates, chlorides and nitrates of calcium and magnesium
	C.	It cannot be removed by boiling	D.	It requires special methods of water softening to get removed
45	When depth of insertion of turbidity rod increases, the reading in the turbidity rod ___			
	A.	Decreases	B.	Increases
	C.	First decrease, then increase	D.	Remains constant
46	The characteristics of fresh and septic sewage respectively are			
	A.	Acidic and alkaline	B.	Alkaline and acidic
	C.	Both acidic	D.	Both alkaline
47	Dis solved oxygen in streams is			

	A.	Maximum at noon	B.	Minimum at noon
	C.	Maximum at midnight	D.	Same throughout the day
Maximum at noon				
48	The ratio of 5 day BOD to ultimate BOD is about			
	A.	1/3	B.	2/3
	C.	3/4	D.	1.0
49	The relative stability of a sewage sample, wh ose dissolved oxygen is same as the total oxygen required to satisfy BOD, is			
	A.	1	B.	100
	C.	infinity	D.	0
50	In terms of percentage how much BOD is oxidized in 5 days?			
	A.	90%	B.	70-90%
	C.	60-70%	D.	50%

CHAPTER -3 SEDIMENTATION

1	The settlement of a particle in sedimentation tank is affected by…			
	A.	Velocity of flow	B.	Specific gravity of solid
	C.	Viscosity of water	D.	All above
2	Discrete or granular particle change their …			
	A.	Size	B.	weight
	C.	Shape	D.	None
3	What is formed when coagulant is added to water?			
	A.	Scum	B.	Soap
	C.	Bubbles	D.	Floc
4	In a sedimentation tank the settling velocity of a p article for a discharge Q is			
	A.	Q/(B X D)	B.	Q/(L X D)

	C.	Q/L	D.	Q/(B X L)
5	Why Alum is preferred over other coagulants ?			
	A.	It is easy to dewater the sludge formed	B.	It imparts corrosiveness to water
	C.	It reduces taste and odour in addition to turbidity	D.	The time required for floc formation is less
6	The maximum depth of sedimentation tank is …			
	A.	3 m	B.	3.5 m
	C.	4 m	D.	4.5 m
7	If the temperature of sedimentation tank is increased , the speed of sedimentation will			
	A.	Get faster	B.	Get slowed down
	C.	Not be affected	D.	Can’t able to detect
8	Sur face loading or overflow velocity of a plain sedimentation tank may vary in the range			
	A.	100-500 l/hr/m2	B.	500-750 l/hr/m2
	C.	1000-1200 l/hr/m2	D.	None
9	The velocity of flow of water in a plain sedimentation tank may normally be taken as			
	A.	15-30 cm/sec	B.	15-30 cm/min
	C.	15-30 cm/hr	D.	None
10	The most widely used coagulant for water treatment is			
	A.	Lime - soda	B.	Ferrous sulphate
	C.	Chlorinated copperas	D.	Alum
11	The detention time (t) of a settling tank, may be defined as the time required for			
	A.	A particle to travel along its length	B.	A particle to travel from top surface to bottom sludge zone
	C.	The flow of sewage to fill the tank	D.	All above
12	Flocculated particles do not change their			
	A.	Size	B.	Weight
	C.	Shape	D.	None
13	_____ is an operation designed to force agitation in the fluid and induce coagulation.			
	A.	Sedimentation	B.	Flocculation
	C.	Disinfection	D.	Aeration
14	In primary sedimentation, the 0.2 mm inorganic solids get separated if specific gravity is			
	A.	6.25	B.	2.85

	C.	2.10	D.	2.65
15	The coagulant widely used for sewage treatment, is			
	A.	Lime - soda	B.	Ferric chloride
	C.	Chlorinated copperas	D.	alum
16	The chemical most commonly used to increase speed of sedimentation of sewage is			
	A.	Sulphuric acid	B.	Copper sulphate
	C.	Lime	D.	Sodium permanganate
17	For a given discharge, the efficiency of sedimentation tank can be increased by			
	A.	Increasing the depth of tank	B.	Decreasing the depth of tank
	C.	Increasing the surface area of tank	D.	Decreasing the surface area of tank
18	The detention period in coagulation tanks is usually kept as			
	A.	1 to 2 minutes	B.	30 to 45 minutes
	C.	2 to 6 hours	D.	2 to 6 days
19	The settling velocity of a particle in a sedimentation tank increases if			
	A.	Particle size is decreased	B.	The depth of tank is decreased
	C.	The surface area of tank is increased	D.	None
20	The average time required by water to pass through the settling tank is called _____			
	A.	Detention time	B.	Time of flow
	C.	Flowing through period	D.	Mean time
21	The relative stability of a sewage sample, whose dissolved oxygen is same as the total oxygen required to satisfy BOD, is			
	A	10-25	B	50
	C	75	D	100
22	Al um as a coagulant is found to be most effective when pH range of water is			
	A	2 to 4	B	4 to 6
	C	6 to 8	D	8 to 10
23	The alum, when added as a coagulant in water			
	A	Does not require alkalinity in water for flocculation	B	Does not affect pH value of water
	C	Increases pH value of water	D	Decreases pH value of water
24	The quantity of water flowing per hour per unit horizontal area is called _____			

	A.	Detention time	B.	Flowing through period
	C.	Displacement time	D.	Overflow rate
25	Normal values of overflow rate for sedimentation tanks using coagulants in litres/hr/m2, generally range between			
	A.	100-500 l/hr/m2	B.	500-750 l/hr/m2
	C.	1000-1200 l/hr/m2	D.	750-1000 l/hr/m2
26	Al um is a			
	A.	Coagulant	B.	Flocculent
	C.	Catalyst	D.	Disinfectant
27	The amount of coagulant needed for coagulation of water increases with i) increase in turbidity of water ii) decrease in turbidity of water iii) increase in temperature of water iv) decrease in temperature of water The correct answer is			
	A.	(i) and (ii)	B.	(i)and(iv)
	C.	(ii) and (iii)	D.	(ii) and (iv)
28	Du ring treatment of water, sedimentation is done			
	A.	Before filtration	B.	After filtration
	C.	Simultaneously with filtration	D.	Along with chlorination
29	The flow of water gets retarded, in			
	A.	Settling tank	B.	Sedimentation tank
	C.	Clarifier	D.	All the above
30	Flo w through period, in sedimentation tanks, is			
	A.	Equal to detention period	B.	More than detention period
	C.	Less than detention period	D.	Detention period divided by displacement efficiency
31	Normal values of overflow rate for plain sedimentation tanks in litres/hr/m2, generally range between			
	A.	100-500 l/hr/m2	B.	500-750 l/hr/m2
	C.	1000-1200 l/hr/m2	D.	750-1000 l/hr/m2
32	Detention period of a settling tank is			
	A.	Average theoretical time required for water to flow through the tank	B.	Time required for flow of water to fill the tank fully
	C.	Average time for which water is retained in tank	D.	All the above

33	The maximum depth of sedimentation tanks is limited to_____m			
	A.	2	B.	3
	C.	6	D.	8
34	In plain sedimentation tanks under normal conditions, impurities are removed up to			
	A.	60	B.	70
	C.	80	D.	90
35	In which settling type, dilute suspension of particles takes place?			
	A.	Zone settling	B.	Compression settling
	C.	Hindered settling	D.	Discrete settling
36	The time period for which the water is stored in a sedimentation tank is called _____			
	A.	Time of flow	B.	Frequency of flow
	C.	Settling time	D.	Detention period
37	Settling velocity of a spherical body in a viscous fluid is given by _____			
	A.	Reynolds law	B.	Newton's law
	C.	Stokes law	D.	Charles law
38	When impurities are separated by the gravitation of settling particles, the operation is called _____			
	A.	Plain sedimentation	B.	Sedimentation with coagulant
	C.	Secondary sedimentation	D.	Disinfection
39	In which type of settling, sedimentation of discrete particles takes place?			
	A.	Zone settling	B.	Compression settling
	C.	Hindered settling	D.	Discrete settling
40	The chemical composition of Alum is _____			
	A	Al2 (SO4)3.18H2O	B	Al8 (SO4)6.18H2O
	C	Al3 (SO6)2.18H2O	D	Al4 (SO4)6.18H2O
41	The settling velocity of a particle in a sedimentation tank depends on			
	A.	Depth of tank	B.	Both depth and surface area of tank
	C.	Surface area of tank	D.	None
42	The detention period and overflow rate respectively for plain sedimentation as compared to sedimentation with coagulation are generally			
	A.	Less and more	B.	More and less
	C.	Less and less	D.	More and more

43	In a fill and draw type sedimentation tank, a detention period of ____ hours is provided.			
	A.	6	B.	12
	C.	18	D.	24
44	Which of the following represents the correct relation between displacement velocity and diameter of the particle?			
	A.	v1 = (8Bg (G-1) d/f) 1/2	B.	v1 = (8Bg (G-1) d2/f)2
	C.	v1 = (8Bg (G-1) d/f)	D.	v1 = (8Bg (G-1) d/f)2
45	Which of the following statement is wrong regarding Iron salt?			
	A.	Iron salt produces less floc than Alum	B.	Detention time for sedimentation by using Iron salt as coagulant is less
	C.	Handling of Iron salt requires some skills	D.	Iron removes H2S, taste and odour
46	Particles of around 1 micron size are best remove d by			
	A.	Filtration	B.	Plain sedimentation
	C.	Chemical precipitation	D.	Chemical coagulation
47	The efficiency of sedimentation does not depend upon			
	A.	Detention period	B.	Length of tank
	C.	Depth of tank	D.	Horizontal velocity of flow
48	Type II settling in water treatment is defined			
	A.	Settling of discrete particle in dilute suspension	B.	Settling of flocculent particle in dilute suspension
	C.	Setting of flocculent particle in concentrated suspensions	D.	Settling of particles in the form of large blanket
49	The detention period for a water of sedimentation tank may vary between			
	A.	1-2 hr	B.	2-4 hr
	C.	4-8 hr	D.	16-24 hr
50	A Clari-flocculator is a			
	A.	Plain sedimentation unit	B.	Aeration unit
	C.	Coagulation-sedimentation unit	D.	None

CHAPTER -4 FILTRATION

1	Rapid gravity filters remove bacteria as much as			
	A.	80-90 %	B.	90-950%
	C.	98-99%	D.	none
2	Cleaning of rapid sand filters is done by			
	A.	Scraping and removal of sand	B.	Back washing
	C.	both	D.	none
3	Activated carbon is used in water treatment f or removing			
	A.	Colour	B.	tastes and odours
	C.	turbidity	D.	corrosiveness
4	Air binding phenomena in rapid sand filters occur due to			
	A.	Excessive negative head	B.	Higher turbidity in the effluent
	C.	Mud ball formation	D.	Low temperature
5	Period of cleaning of slow sand filters is about			
	A.	24 - 48 hours	B.	2 - 3 months
	C.	10 - 12 days	D.	1 - 2 year
6	Which of the following statement is wrong regarding Anthracite?			
	A.	It requires less water	B.	It is less inert to caustic solutions than sand
	C.	It is more costly per tonne than sand	D.	It is used in industrial filters.
7	The rate of Alteration of pressure filters is			
	A.	Less than that of slow sand filters.	B.	In between the filtration rate of slow sand filters and rapid sand filters.
	C.	Greater than that of rapid sand filters.	D.	Equal to that of slow sand filters.
8	The loss of head during cleaning operation of a rapid sand filter is _____			
	A.	15-30cm	B.	10-20cm
	C.	1-5cm	D.	10-25cm

9	The rate of filtration in slow sand filters in million litres per day per hectare is about			
	A.	50 to 60	B.	100 to 150
	C.	500 to 600	D.	1400 to 1500
10	In which treatment unit is “schmutz decke” formed?			
	A.	Sedimentation tank	B.	Rapid sand filter
	C.	Coagulation tank	D.	Slow sand filter
11	The process of passing water through beds of granular materials, is called			
	A.	Screening	B.	Sedimentation
	C.	Filtration	D.	None of these
12	Rapid gravity filters			
	A.	Were developed by G.W. Fuller	B.	Make use of coarser sand with effective size as 0.5 mm
	C.	Yield as high as 30 times the yield of slow sand filters	D.	All
13	The U.C. (uniformity coefficient) D60/D10 f or the best filter media sand should be			
	A.	2	B.	3
	C.	4	D.	5
14	To remove very fine suspended particles from water, the method adopted is			
	A.	Screening	B.	Sedimentation
	C.	Filtration	D.	Boiling
15	Pic k up the incorrect statement from the following:			
	A.	The water entering the slow sand filters should be treated by 9.386 coagulants	B.	The depth of water on the filter should be twice the depth of the filter sand
	C.	When the filter head is 0.75 times the depth of filter sand, the water obtained is purest	D.	All
16	After cleaning a slow sand filter, the filtered water is not used for			
	A.	6 hours to 12 hours	B.	12 hours to 18 hours
	C.	18 hours to 24 hours	D.	24 hours to 36 hours
17	A s low sand filter is cleaned if its filter head is hig her than			
	A.	10 cm to 20 cm	B.	20 cm to 40 cm
	C.	40 cm to 70 cm	D.	70 cm to 120 cm

18	Ra pid gravity filters can remove bacterial im purities up to a maximum of_____%			
	A.	50	B.	60
	C.	70	D.	80
19	In a rapid gravity filter			
	A.	Raw water from the source is supplied	B.	Disinfected raw water is supplied
	C.	Raw water passed through coagulation tank is supplied	D.	None
20	Distribution of wash water is provided in			
	A.	Sedimentation tank	B.	Slow sand filter
	C.	Rapid gravity filter	D.	All the above
21	Du ring treatment of water, sedimentation is d one			
	A	Before filtration	B	After filtration
	C	Simultaneously with filtration	D	Along with chlorination
22	The yield of a rapid gravity filter as compared to that of slow sand filter, is_____times.			
	A	10	B	15
	C	20	D	30
23	The under drainage system in pressure consists of _____			
	A	Central drains connected to lateral drain	B	Wheeler system
	C	Wagner system	D	Pipe grids, false bottom
24	In which action of filtration, particles coarser than the void size is arrested?			
	A.	Mechanical straining	B.	Biological mechanism
	C.	Sedimentation	D.	Electrolytic action
25	In slow sand filters, the turbidity of raw water can be removed only up to_____mg/liter			
	A.	60	B.	75
	C.	100	D.	150
26	Cleaning of slow sand filters is done by			
	A.	Scraping and removal of sand	B.	Back washing
	C.	reversing the direction of flow of water	D.	Passing air through the filter
27	Efficiency of removing bacteria from raw water by a slow sand filter, is_____%			
	A.	80-81	B.	85-86
	C.	90-97	D.	98-99

28	A high velocity of wash water is required for			
	A.	Rapid gravity filter with strainers	B.	Rapid gravity filter without strainers
	C.	Slow sand filter with strainers	D.	Slow sand filter without strainers
29	Filtration of water is done to remove			
	A.	Colour	B.	Odour
	C.	Turbidity	D.	Pathogenic bacteria
30	An ideal sand for filters should be			
	A.	Free from dirt and other impurities	B.	Uniform in nature and size
	C.	Hard and resistant	D.	All
31	In rapid sand filters the ratio of length and diameter of the lateral, should not be greater than			
	A.	10	B.	15
	C.	20	D.	25
32	In which of the following filter, water is passed under higher pressure?			
	A.	Slow sand filter	B.	Rapid sand filter
	C.	Dual media filter	D.	Pressure filter
33	Which type of problem is caused in filter due to the accumulation of solids on the top surface of filter media?			
	A.	Clogging	B.	Air binding
	C.	Sand incrustation	D.	Sand leakage
34	In which action of filtration, colloidal particle s are removed?			
	A.	Mechanical straining	B.	Biological mechanism
	C.	Sedimentation	D.	Electrolytic action
35	Which is the first zone of purification in a sand bed?			
	A.	Autotrophic zone	B.	Heterotrophic zone
	C.	Schmutzdecke zone	D.	Electrolytic zone
36	In which action of filtration, removal of particulate matter takes place?			
	A.	Mechanical straining	B.	Biological mechanism
	C.	Sedimentation	D.	Electrolytic action
37	Th e thickness of the base material of a rapid sand filter on which filter media are supported is _ _____			
	A.	45-60cm	B.	20-80cm
	C.	30-75cm	D.	10-30cm

38	In which type of under drainage system of rapid sand filter, laterals are provided with strainers?			
	A.	Perforated pipe system	B.	Pipe and strainer system
	C.	Wheeler system	D.	Wagner system
39	Which device is used to supply air for the agitation of sand grains during washing of filters?			
	A.	Rate control device	B.	Tube settlers
	C.	Air compressors	D.	Flocculator
40	When the fineness of sand increases _____ ___			
	A.	The bacterial efficiency increases	B.	The rate of filtration increases
	C.	The rate of filtration first decrease, then increase	D.	The bacterial efficiency remains constant
41	The uniformity characteristics of sand expressed in terms of _____			
	A.	Effective size	B.	Effective size and uniformity coefficient
	C.	Uniformity coefficient	D.	Mean velocity
42	Which of the following is not commonly use d as a filter material in the treatment of water?			
	A.	Sand	B.	Anthracite
	C.	Crushed rock	D.	Garnet sand
43	In which type of filter, rate of filtration is low?			
	A.	Slow sand filter	B.	Rapid sand filter
	C.	Gravity filter	D.	Pressure filter
44	Which of the following statement is wrong regarding filtration?			
	A.	It removes fine particle	B.	It removes suspended solids not removed by sedimentation
	C.	It does not remove turbidity	D.	It removes colour
45	Rapid gravity filter can only remove turbidity of water up to_____gm/liter			
	A.	15-25	B.	25-30
	C.	30-35	D.	30-40
46	The percentage of filtered water, which is use d for backwashing in rapid sand filters, is about			
	A.	0.2 to 0.4	B.	0.4 to 1.0
	C.	2 to 4	D.	5 to 7

47	Which type of filter is used in treating swim ming pool water?			
	A.	Slow sand filter	B.	Rapid sand filter
	C.	Dual media filter	D.	Pressure filter
48	In water treatment, rapid gravity filters are adopted to remove			
	A.	Dissolved organic substances	B.	Rapid sand filter
	C.	Dissolved solids and dissolved gases	D.	Bacteria and colloidal solids
49	The effective size of sand particles used in slow sand filters is			
	A.	0.25 to 0.35 mm	B.	0.60 to 1.00 mm
	C.	0.35 to 0.60 mm	D.	1.00 to 1.80 mm
50	Slow sand gravity filters remove bacteria as much as			
	A.	80-90 %	B.	90-950%
	C.	98-99%	D.	none