Started on	Tuesday, 15 February 2022, 2:00 PM
State	Finished
Completed on	Tuesday, 15 February 2022, 2:57 PM
Time taken	56 mins 53 secs
Grade	**30.00** out of 40.00 (**75**%)

Question 1

Complete

Mark 4.00 out of 4.00

(4points)Calculate total theoretical oxygen demand of 147.2 mg/L glucose and 10.8 mg/L benzene?

Answer: 190.244

The correct answer is: 190.19

Question 2

Complete

Mark 0.00 out of 4.00

(4points) **A solution has 0.9mmol/L $MgCl_2$. For a flow of 25322.2m^3/d, calculate total quantity of soda ash (kg/d) needed? Soda ash is 0.9% pure.**

Answer: 134207.66

The correct answer is: 2684.15

Question 3

Complete

Mark 4.00 out of 4.00

(4points)Particle A (0.01mm diameter, specific gravity =2.65, shape factor=1) is settling in a 100ml beaker (case 1). In another case 2, particle B (0.1mm diameter, specific gravity =1.3, shape factor=1) is settling in a 100ml beaker. In both cases, water is at 20degC (assume Re <1).Calculate value of (t1/t2)?

Select one:

- 18.18
- 25.18
- 50
- 80

The correct answers are: 18.18, 80, 50, 25.18

Question 4

Complete

Mark 4.00 out of 4.00

(4points)A sample A (100mL volume) (water quality : 1mg/L Cadmium ions, 50mg/L nitrates, 0.8mg/L residual chlorine) is mixed with 100mL of Sample B(water quality : 2mg/L Cadmium ions, 100mg/L nitrates, 1.6mg/L residual chlorine)(all other water quality parameters are within limits). The final solution is tested for its suitability of drinking purpose. Can the water be rejected as unsuitable for drinking purpose?

Select one:

- No
- Yes

The correct answer is: Yes

Question 5

Complete

Mark 4.00 out of 4.00

(4points) **A solution has HOCl and OCl^- (solution pH=7; temperature =25degC). Equilibrium constant for conversion of HOCl to OCl^- is $3*10^{-8}$ mole/L. Calculate value of (HOCl/{HOCl+OCl^-})?**

Select one:

- 0.231
- 0.7692
- 0.7
- 0.3

The correct answer is: 0.7692

Question 6

Complete

Mark 2.00 out of 2.00

(2points)Residual chlorine is provided in drinking water treatment :

Select one:

- Before filtration
- Before supplying water to consumers
- After flocculation
- After adsorption

The correct answer is: Before supplying water to consumers

Question 7

Complete

Mark 2.00 out of 2.00

(2points)For 99% kill, C**t** values of 4 pathogens are given as following: Adenovirus: $C^{0.85}*t=0.098$; E.coli: $C^{0.85}*t=0.24$; Poliomyelitis virus:$C^{0.85}*t=1.2$; Coxsackievirus A2: $C^{0.85}*t=6.3$. Here, C is conc. of HOCl in mg/L unit and (t) is time in minutes. Arrange pathogen in decreasing order of their persistence to 1mg/L HOCl.

Select one:

- Adenovirus < E.coli <Poliomyelitis virus <Coxsackievirus A2
- E.coli < Adenovirus < Poliomyelitis virus <Coxsackievirus A2
- E.coli<Poliomyelitis virus <Coxsackievirus A2<Adenovirus
- Coxsackievirus A2 <Adenovirus < E.coli <Poliomyelitis virus

The correct answer is: Adenovirus < E.coli <Poliomyelitis virus <Coxsackievirus A2

Question 8

Complete

Mark -1.00 out of 2.00

(2points)A water sample has 20mg/L sodium ions, 5mg/L calcium ions, 100mg/L suspended solids, 40mg/L chloride ions,50mg/L ferric ions and 10^7 MPN/100ml fecal coliforms. Alkalinity will be caused by

Select one:

- Calcium ions
- Chloride ions
- Sodium ions
- Ferric ions

The correct answer is: Chloride ions

Question 9

Complete

Mark 2.00 out of 2.00

(2points)Nanoparticles (particles with diameter in nanometer range) can be removed from water using

Select one:

- neutralization followed by pH increase
- Alum coagulation and settling
- carbonation
- Disinfection

The correct answer is: Alum coagulation and settling

Question 10

Complete

Mark 2.00 out of 2.00

(2points)In drinking water treatment plant, chemical sludge is produced during:

Select one:

- precipitation
- aeration
- disinfection
- filtration

The correct answers are: filtration, precipitation

Question 11

Complete

Mark 2.00 out of 2.00

(2points) Restabilization of colloidal particles happen due to _____

Select one:

- Sweep coagulation of particles
- high concentration of counter ions
- Aggregation
- ionic layer compression

The correct answer is: high concentration of counter ions

Question 12

Complete

Mark 2.00 out of 2.00

(2points)Algal growth mainly depends on nutritional loading of _____.

Select one:

- protein and phosphorus,
- nitrogen and pH,
- nitrogen and phosphorus,
- nitrogen and carbon.

The correct answer is: nitrogen and phosphorus,

Question 13

Complete

Mark 2.00 out of 2.00

(2points) Disinfection process is preferred after removing _____and ammonia from water.

Select one:

- organic compounds
- viruses
- bacteria
- ionic compounds

The correct answer is: organic compounds

Question 14

Complete

Mark -1.00 out of 2.00

(2points)Softening removes_____from water.

Select one:

- divalent cations only,
- divalent cations and higher valence cations,
- divalent anions
- divalent cations as well as anions.

The correct answer is: divalent cations and higher valence cations,

Question 15

Complete

Mark 2.00 out of 2.00

(2points) Particle A has negative surface charge. Alum is added to remove particle A from solution (pH 3). Type of coagulation mechanism would be:

Select one:

- polymer bridging
- adsorption
- ionic layer compression
- sweep coagulation

The correct answer is: ionic layer compression

◄ Jan29thQuiz1(810am-820am)

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