Unit 7 - week 5

Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-04, 23:59 IST.

1) *1 point*

A polluted water stream can always be distinguished from clean water by:
a) Visual observation
b) By smell
c) Analyzing water quality parameters
d) Any of the above

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

2) *1 point*

The major routes of exposure for water pollutants are:
a) Dermal and Ingestion
b) Ingestion and Inhalation
c) Dermal and Inhalation
d) Dermal, Ingestion and Inhalation

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

3) *1 point*

Identify the correct set of examples for chronic and acute pollution effects:
a) Acute – Diarrhea and Cancer; Chronic – Arthritis and Typhoid
b) Acute – Arthritis and Typhoid; Chronic – Diarrhea and Cancer
c) Acute – Cancer and Arthritis; Chronic – Diarrhea and Typhoid
d) Acute – Diarrhea and Typhoid; Chronic – Cancer and Arthritis

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

4) *1 point*

Match the water quality parameters with their units given in the columns below:

A – Turbidity	1 – mg/L
B - MPN	2 – mg/L as $CaCO_3$
C - Alkalinity	3 – NTU
D – TDS	4 - Numbers / 100 mL

a) A-1, B-4, C-2, D-3
b) A-3, B-4, C-2, D-1
c) A-4, B-3, C-1, D-2
d) A-2, B-3, C-4, D-1

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

5) *1 point*

Conductivity of pure water is approximately:
a) 1 nS/cm
b) 1 μS/cm
c) 1 mS/cm
d) 1 S/cm

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

6) *1 point*

Among the given parameters, turbidity in water can be best correlated with:
a) Dissolved Solids in water
b) Suspended Solids in water
c) Microbial pollution in water
d) Organic compounds in water

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

7) *1 point*

Spectrophotometers are typically used for monitoring the concentrations of:

a) Microorganisms in water
b) Total dissolved solids in water
c) Compounds which can scatter light
d) Compounds which can absorb light

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

8) *1 point*

The most common location for providing screens in water supply projects is:

a) Entry point at water intake
b) First unit at water treatment plant
c) Before sedimentation unit at water treatment plant
d) After aeration unit at water treatment plant

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

9) *1 point*

Which of these pollutants cannot be removed or reduced by aeration?
a) Iron and Manganese
b) Dissolved gasses such as CO_2 and H_2S
c) Pathogenic microorganisms
d) Volatile organic compounds

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

10) *1 point*

Which of this would be a strongest case for which aeration unit should be recommended at water treatment facility?
a) Water sourced from a river having high flow velocity
b) Water sourced from an irrigation canal
c) Water sourced from a shallow lake
d) Groundwater sourced from aquifer

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

11) *1 point*

Inlet zone in a circular sedimentation tank is often at:
a) Center of the tank
b) Region between center and periphery of the tank
c) Periphery of the tank
d) Bottom of the tank

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

12) *1 point*

Inclined (plate or tube) settlers are generally more efficient than conventional settling tanks, because:
a) Settling velocity of the same size of particle is higher in inclined settlers than conventional settling basins
b) In inclined settlers, particles need to fall only small distance to settle whereas in conventional basins a much higher fall is needed for particle to settle
c) The direction of flow of water helps faster settling of particle in inclined settler
d) All of the above

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

13) *1 point*

The most common type of settling observed in sedimentation basins for water treatment are:
a) Discrete and flocculent type settling
b) Discrete and zone type settling
c) Flocculent and zone type settling
d) Zone and compression type settling

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

14) *1 point*

In a settling basin with overflow rate v_o, collection efficiency of particles having settling velocity v_s will be:
a) 100 % for all particles
b) $100*v_o/v_s$ percentage for all particles
c) 100 % for particles having $v_s > v_o$, and $100*v_s/v_o$ percentage for particles having $v_s < v_o$
d) 100 % for particles having $v_s < v_0$, and $100*v_o/v_s$ percentage for particles having $v_s > v_o$

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

15) *1 point*

The percentage removal efficiency of 0.08 mm diameter particles with estimated settling velocity as 4×10^{-3} m/s in a 5 m wide, 20 m long, and 4 m deep settling basin treating 25 MLD, would be:
a) 40 %
b) 66 %
c) 72 %
d) 100 %

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

16) *1 point*

The terminal settling velocity (in m/s) for particles of diameter 0.04 mm and specific gravity 2.56, at a temperature of 20^0C would be [Assume $\rho_w = 1000$ kg/m^3, and $\mu = 0.001$ N s/m^2 at T = 20^0C]

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.0010,0.0016

1 point

17)

Two 4m deep clarifiers in a water treatment plant, each having effective volume as 200 m^3, collectively treats 46 MLD water. The overflow rate (in m^3/m^2/d) for the clarifiers would be:

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 440,480

1 point

18)

For the above clarifiers (Q No. 17), the minimum diameter of particles (in mm) which can be removed with 100 % efficiency would be [Assume density and dynamic viscosity of water as 1×10^{-3} N-s/m^3 and 1000 kg/m^3, and specific gravity of particles as 2.65]

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.06,0.095

1 point

19)

If the above clarifiers (Q No. 17) have length to width ratio as 4:1, the horizontal velocity of particles and water in the tank (in m/s) would be:

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.015,0.023

1 point

20)

For a real settling basin supposed to treat 200 m^3/h, the required effective plan area (in m^2) of settling basin is: [Assume minimum size of particles to be removed 0.05 mm with 75 % efficiency under a good performance (i.e. n=1/4) regime. Also assume $\rho_w = 1000$ kg/m3, and $\mu = 0.001$ N s/m^2 at T = 20^0C, S=2.65].

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 38,44

1 point