

TEST 2

SEMESTER II, SESSION 2017 / 2018

COURSE CODE: SKAA 2912

COURSE NAME: WATER TREATMENT

DURATION: 1 HOUR

DATE: MAY 2018

ANSWER ALL QUESTIONS.

PART A

1. Describe THREE (3) criteria in selecting the location of water intake point.
(3 marks)

2. Explain THREE (3) purposes of conducting aeration in conventional water treatment process.
(6 marks)

3. Illustrate a round-end-type of hydraulic flocculating tank. Label the illustration with the following: baffle, channel, width of the channel, compartment, width of compartment and compartment wall.
(4 marks)

PART B

1. A water treatment plant treats $57,000 \text{ m}^3$ of water in a day. Based on Jar Test, the optimum dosage is obtained when 50 mL of 300 mg/L alum solution is added into 750 mL of water. Find:
 - i. the optimum dosage in mg/L
 - ii. the amount of alum required (kg) for 90 days supply
 - iii. the flow rate of the alum solution (liters per minute)
(10 marks)

2. One way to flocculate particles is via hydraulic method. Compute length, width and depth for a hydraulic flocculation tank of round-the-end-type. Given are the usable data.

Flow rate: $1500 \text{ m}^3/\text{hr}$

Detention time: 25 min

Velocity: 30 cm/s

No. of compartments: 4

Width for each compartment: 2 m

Distance between baffles: 0.4 m

Thickness of each baffle: 50 mm

Thickness of compartment: 0.2 m

(12 marks)