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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
(TAKE HOME)  
SEMESTER II  
SESSION 2019/2020**

COURSE NAME : WATER SUPPLY AND SEWERAGE  
SYSTEM  
COURSE CODE : BBB 30302  
PROGRAMME CODE : BBB  
EXAMINATION DATE : JULY 2020  
DURATION : 2 HOURS  
INSTRUCTION : ANSWER **FOUR (4)** QUESTIONS  
ONLY

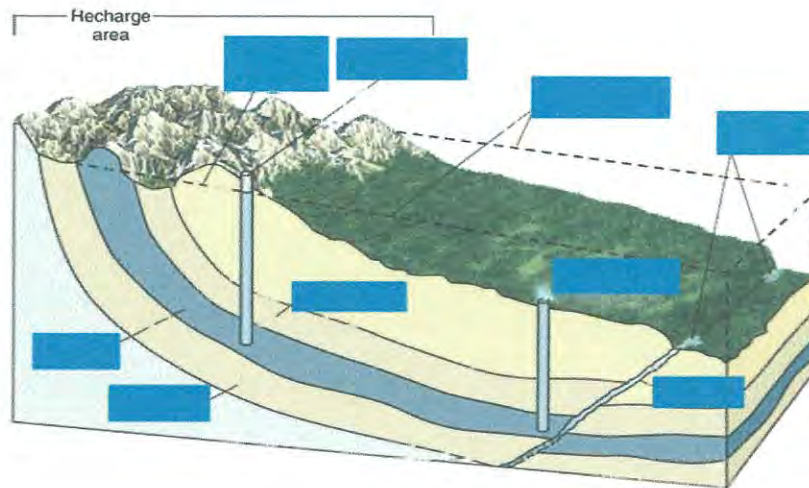
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THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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- Q1 (a) Fill in the blanks and explain each process, as shown in **FIGURE Q1**. (10 marks)



**FIGURE Q1**

- (b) Base on the sketch, name and describe each process that occurs in aquifer. (9 marks)
- Q2 (a) State the three (3) qualities of water quality. Explain the quality of water from physical, chemical, and biological aspects. (6 marks)
- (b) Briefly explain the water treatment process. You can use the appropriate diagrams. (10 marks)
- Q3 (a) Explain the comparison of three (3) methods of water distribution from the features, advantages and disadvantages of each distributions with the appropriate diagrams. (10 marks)
- (b) Explain five (5) principles of drainage pipe installation. (10 marks)
- Q4 (a) Describe five (5) main differences between aerobic and unaerobic bacteria? (5 marks)

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(b) Explain five (5) factors that influence the quantity of surface water. (5 marks)

(c) Calculate the height and velocity of the waste water of a reservoir that is 1: 350 with a displacement of 400 m<sup>3</sup>/day. Given a radius of 100 mm and a manning coefficient,  $n = 0.015$

$$Q_{full} = (1/n)(A)(R)^{2/3} (s)^{1/2}$$

(10 marks)

**Q5** (a) Describe five (5) stages of treatment that occur in each type of sewage treatment plant. (5 marks)

(b) Describe five (5) factors of water loss in traps. (10 marks)

(c) Using the ratio of Width Lengths (L:W = 3:1) and  $C = 255 P$ , where P = Population and C = Volume (liter) with the tank depth is  $d = 2.5$  m. Calculate the length and width of a septic tank to meet the needs of a population of 450 people. (10 marks)

- END OF QUESTIONS -

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