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**UTHM**

Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2019/2020**

COURSE NAME : WATER SUPPLY AND SEWERAGE  
SYSTEM  
COURSE CODE : BBB 30302  
PROGRAMME CODE : BBB  
EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020  
DURATION : 2 HOURS  
INSTRUCTION : ANSWER ALL QUESTIONS

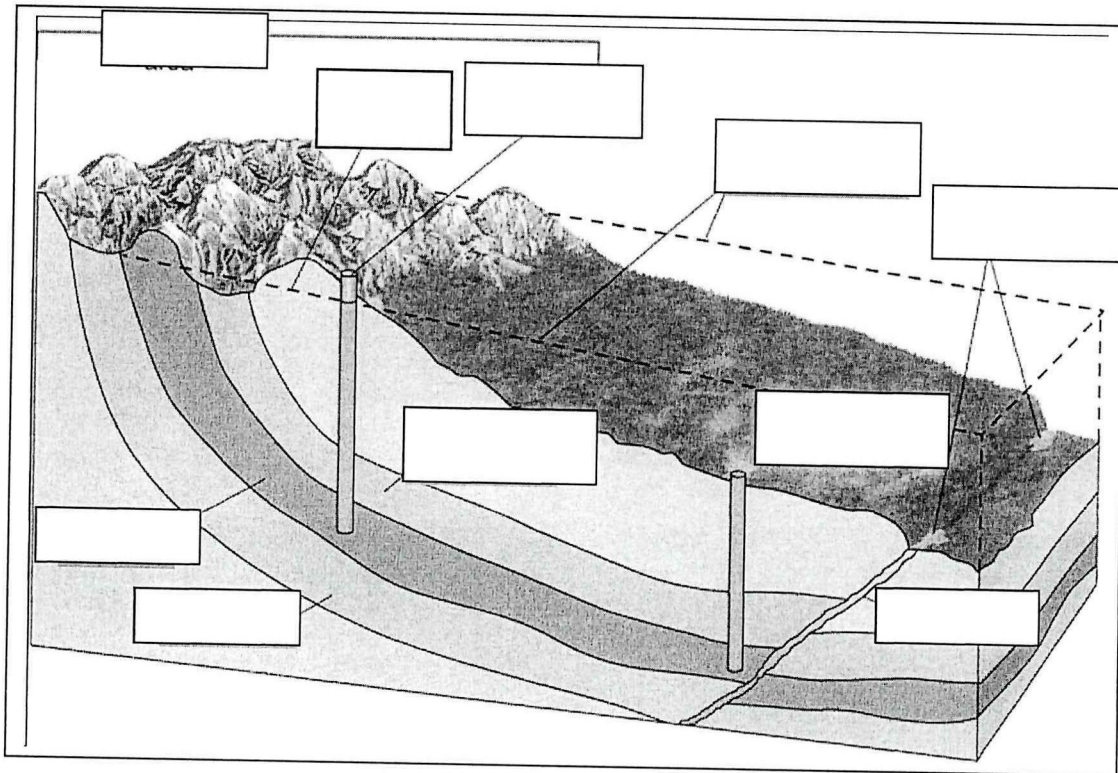
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THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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**Q1 (a)** Fill in the blanks and name each process, as shown in Figure Q1 (a).

(10 marks)



**Figure Q1 (a)**

(b) Base on the Figure Q1 (a), describe each process that occurs in Aquifer.

(10 marks)

**Q2 (a)** State the quality of water from physical, chemical, and biological aspects. State the three qualities of water quality.

(5 marks)

(b) Sketch and explain the water treatment process.

(10 marks)

**Q3 (a)** Sketch and explain the comparison of three (3) methods of water distribution from the features, advantages and disadvantages of each of these distributions

(10 marks)

(b) Explain five (5) principles of drainage pipe installation

(10 marks)

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- Q4** (a) Explain the different between aerobic and unaerobic bacteria. (5 marks)
- (b) State 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) State 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 mm. 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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