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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2014/2015**

COURSE NAME	:	ENVIRONMENTAL ENGINEERING TECHNOLOGY
COURSE CODE	:	DAK10903
PROGRAMME	:	1 DAK
EXAMINATION DATE	:	DECEMBER 2014/ JANUARY 2015
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER ALL QUESTIONS IN <b>SECTION A AND TWO (2)</b> QUESTIONS IN <b>SECTION B</b>

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

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**SECTION A**

- Q1** (a) Solid or semi-solid materials (including gases and liquids in containers) which are non-soluble in nature are solid waste. Briefly discuss **FIVE (5)** types of solid waste. (10 marks)
- (b) One of the solid waste treatment methods is incineration.
- (i) Describe **TWO (2)** types of incinerators. (4 marks)
- (ii) Discuss briefly about the processes involved in an incineration plant. (8 marks)
- Q2** (a) Hazardous waste is dangerous thus potentially harmful to our health and the environment. It can be classify as liquids, solids, gases, or sludges.
- (i) List **FIVE (5)** sources of hazardous waste. (5 marks)
- (ii) Elaborate **FOUR (4)** characteristics of hazardous waste. (8 marks)
- (b) As an environmental engineer at Majlis Perbandaran Batu Pahat, your responsibilities include finding solutions to the current hazardous wastes for Batu Pahat region. Identify and discuss **TWO (2)** suitable treatment techniques for wastes disposal and give **ONE (1)** advantage and **ONE (1)** disadvantage of the each treatment. (12 marks)

**SECTION B**

- Q3** (a) Established in 1975, the Department of Environment (DOE) is the federal authority in Malaysia that also monitors air and water quality and noise, manages toxic and hazardous wastes based on the principle and implements of the Environmental Impact Assessment system. Discuss the primary functions of DOE. (10 marks)
- (b) Over-Population, destruction of habitats for agriculture and mining, pollution from industry and transportation, and many other activities all contribute to the damage of the environment.
- (i) List **FIVE (5)** human impacts on environment. (5 marks)
- (ii) Acid rain has many ecological effects, but none is greater than its impact on lakes, streams, wetlands, and other aquatic environments. With a sketch diagram, label and explain the acid rain formation. (10 marks)
- Q4** (a) Quality drinking water is important to our health and well-being. There are several parameters to measure water quality.
- (i) Describe briefly its **FIVE (5)** physical parameters. (10 marks)
- (ii) Describe briefly its **FIVE (5)** chemical parameters. (10 marks)
- (b) Benthic invertebrates are organisms that live in or on the bottom sediments of rivers, streams, and lakes. List **FIVE (5)** benthic invertebrates indicators. (5 marks)

- Q5** (a) When the groundwater level is very deep, deep wells must be drilled into the ground. With the aid of diagram in **Figure Q4 (a)**, explain the differences between them. (4 marks)
- (b) (i) List **FOUR (4)** basic system of water supplies. (4 marks)
- (ii) Identify and discuss **THREE (3)** methods of distribution system. (9 marks)
- (c) Briefly explain the processes involves in water treatment plant. (10 marks)
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- Q6** (a) Conventional wastewater treatment consist of a combination of physical, chemical and biological processes and operations to remove solids, organic matter and nutrients from wastewater.
- (i) Elaborate **THREE (3)** processes involved in the preliminary treatment. (6 marks)
- (ii) Describe briefly about the conventional wastewater treatments. (10 marks)
- (b) List **THREE (3)** types of ponds by process. (3 marks)
- (c) Describe briefly types of trickling filter. (6 marks)

- END OF QUESTION -

**FINAL EXAMINATION**

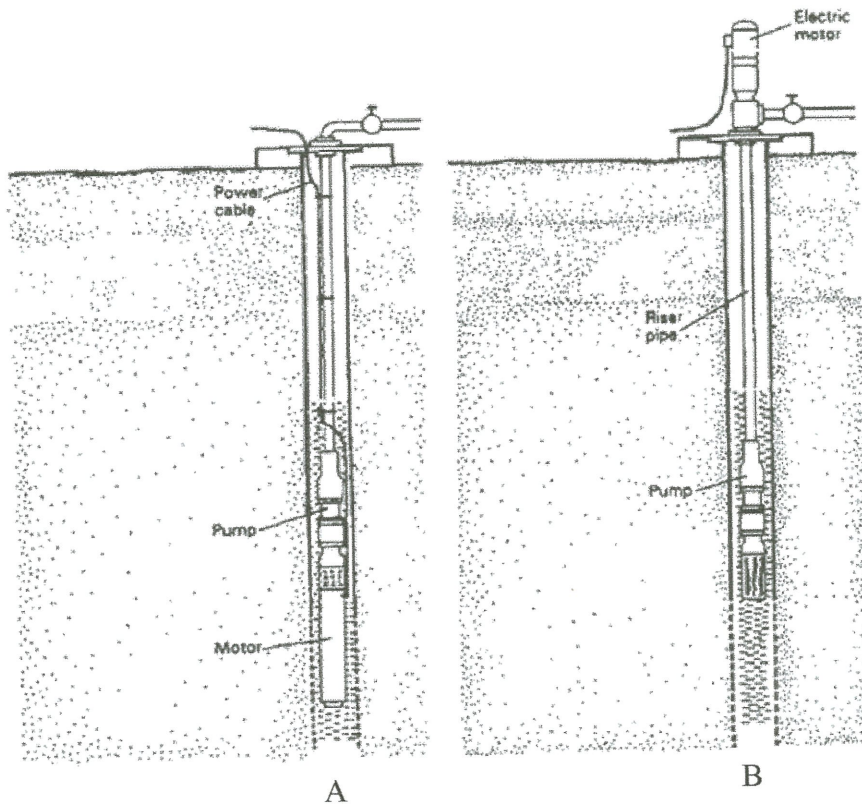
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**Deep Well**



**FIGURE Q4 (a)**