UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2012/13

COURSE NAME	:	ENVIRONMENTAL SAMPLING
COURSE CODE	:	DAC 38003
PROGRAMME	:	3 DFT
EXAMINATION DATE	:	MARCH 2013
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **5 (FIVE)** QUESTIONS ONLY

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

Q1 (a) List **3 (THREE)** water quality parameters.

(3 marks)

(b) Describe the method of preparing iodine solution.

(5 marks)

(c) List **3 (THREE)** applications of iodine solution.

(3 marks)

(d) Explain briefly the method of waste disposal for the following:

    i) On-site recovery
    ii) On-site storage
    iii) Prescribed premises

(9 marks)

Q2 (a) Briefly explain sample distillation.

(4 marks)

(b) Describe the differences between settleable solids and nonsettleable solids.

(4 marks)

(c) Explain the application of extraction dilution for wastewater sample.

(4 marks)

(d) Sketch and label the Soxhlet Extractor.

(8 marks)

Q3 (a) List **5 (FIVE)** steps in selecting sample container.

(5 marks)

(b) Describe the preparation of experimental apparatus.

(5 marks)

(c) Explain breifly the sterillization method for the following:

  i) Derivation of hydrochloric acid
  ii) UV light
  iii) Filter paper
  iv) Radiation
  v) Sterillization efficiency test

(10 marks)

Q4 (a) Describe the preservation method of the inorganic chemical reagent.

(4 marks)

(b) Explain the reason for instrumental calibration.

(4 marks)

(c) Explain the procedures of calibration activities.

(12 marks)

Q5 (a) What is bioconcentration?

(6 marks)

(b) Describe the determination of bioconcentration factor.

(4 marks)

(c) Determine approximate alkalinity at 25°C for a water containing 100 mg/L CO_3^{2-} and 75 mg/L HCO_3^- at pH 10.
(C = 12, O = 16, H = 1, H+ = 10^{-7} and OH- = 1.7)

(10 marks)

Q6 (a) List **5 (FIVE)** safety rules of the in-situ test.

(10 marks)

(b) Determine the BOD_5 for the 10 mL of wastewater and 300 mL of dilution water filled up in BOD bottle. Concentration of dissolved oxygen for day-1 is 7.5 mg/L and for day-5 is 5.0 mg/L.

(5 marks)

(c) Determine the fraction of maximum oxygen consumption in four days for a wastewater being discharged into a river at temperature 10°C and BOD rate constant under standard conditions is 0.115 day^{-1} with θ value is 1.135.

(5 marks)

- END OF QUESTION -