



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : WASTE MANAGEMENT
COURSE CODE : BNJ 40103
PROGRAMME CODE : BNH
EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

- Q1** (a) Explain:-
(i) waste
(ii) waste management
(iii) solid waste
(6 marks)
- (b) Discuss **TWO (2)** categories of textile waste classification.
(6 marks)
- (c) Describe Biochemical Oxygen Demand (BOD) and show how it is measured.
(4 marks)
- (d) Water quality can be assessed by their physical, chemical and biochemical characterization. Choose **TWO (2)** suitable assessment for wastewater generated from the dyeing process based on physical characteristics.
(4 marks)
- Q2** (a) Choose **THREE (3)** factors contributing to urban water demand.
(6 marks)
- (b) Compare the potential releases emitted in air and water due to the fiber preparation and finishing processes in textile manufacturing.
(8 marks)
- (c) Explain water hardness and identify **TWO (2)** sources in groundwater.
(6 marks)
- Q3** (a) Compare aerobic and anaerobic processes in wastewater treatment. Support your answer with a suitable mechanism illustration.
(12 marks)
- (b) Distinguish the differences among pre-treatment, primary treatment, secondary treatment and tertiary treatment.
(8 marks)
- Q4** (a) (i) Define environmental health hazards. **TERBUKA** (2 marks)
- (ii) Discuss the impact of human-made disasters on environmental health hazards.
(3 marks)

- (b) **Table Q4(b)** shows the municipal solid waste for a typical city in Malaysia. Analyse the given data and calculate the average density, composition and moisture content of the municipal solid waste.

(15 marks)

- Q5** (a) Compare functional elements of solid waste management for urban and rural settings.
(8 marks)

- (b) Explain how the incineration of waste material contributes to air pollution. Choose suitable daily life activities to support your answer.

(8 marks)

- (c) Describe **FOUR (4)** laws and regulation that is important in hazardous waste management

(4 marks)

-END OF QUESTIONS -

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Table Q4(b)

Description	Weight (%)	Typical density (kg/m ³)	Moisture content (%)
Food wastes	39.5	290	70
Yard wastes	3.8	240	60
Paper	0.85	85	6
Plastic	0.7	65	2
Glass/Ceramic	0.5	195	2
Metal	0.65	160	2
Textile	2	65	8
Leather	2.5	160	10
Stones/bricks	40.5	480	10
Miscellaneous	9	240	8
Total	100.00		

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