

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : AQUATIC ECOLOGY
COURSE CODE : BWJ 20603
PROGRAMME CODE : BWW
EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

TERBUKA

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

CONFIDENTIAL

- Q1** Aquatic ecosystems are classified primarily on abiotic factors including temperature, salinity, dissolved oxygen and current. These factors are often related to water depth.
- (a) Distinguish between ecological services and economical services of freshwater ecosystem. Give **SIX (6)** examples of each service type. (12 marks)
 - (b) Density-independent limiting factors affect per capita growth rate independent of population density. Give **TWO (2)** natural disasters related to density-independent limiting factors and briefly explain each. (8 marks)
- Q2** Water quality refers to the physical, chemical and biological parameters of water; and all these characteristics directly or indirectly influence the survival and production of aquaculture species.
- (a) Turbidity is the measurement of inhibition of light passing through a water sample. Explain the influence of turbidity to the physical, chemical and/or biological properties of aquatic ecosystem. Give **FOUR (4)** examples to support your explanation. (4 marks)
 - (b) Identify a device to measure multiparameters of physical and chemical properties of an aquatic environment including temperature and water density. Give **FOUR (4)** indicators that suggest good water quality and briefly explain each of them. (10 marks)
 - (c) Briefly explain **THREE (3)** effects of sea level rise on marine and estuarine environments. (6 marks)
- Q3** Trophic levels contain groups of organisms with similar methods of food (energy) consumption. Energy moves from one trophic level to the next through the food web.
- (a) Define 'primary producer' and 'primary consumer'. Briefly explain the role of primary consumers as ecological indicators of water bodies. (8 marks)
 - (b) Distinguish between the zones of freshwater ecosystem and marine ecosystem. Give **FOUR (4)** comparisons. (12 marks)
- Q4** Water has a variety of unusual properties because of attractions between its polar molecules.
- (a) Compare between cohesion and adhesion. TERBUKA (4 marks)

(b) Give **FIVE (5)** comparisons between lentic system and lotic system. (10 marks)

(c) Define estuary. Briefly explain **TWO (2)** ecological roles of estuary. (6 marks)

Q5 Climate change may result in sea level rise, water temperature increase, and deviations from present patterns of precipitation, wind, and water circulation.

(a) Identify **SIX (6)** effects of climate change to estuaries. (12 marks)

(b) Do you agree that gradual rise in earth's temperature could initiate subsequent episodes of water evaporation? Briefly explain your choice of answer. Give **THREE (3)** viewpoints. (8 marks)

– END OF QUESTIONS –

TERBUKA