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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2022/2023**

- COURSE NAME : RENEWABLE ENERGY APPLICATIONS
- COURSE CODE : BNB40803
- PROGRAMME CODE : BNB
- EXAMINATION DATE : JULY/AUGUST 2023
- DURATION : 3 HOURS
- INSTRUCTION : 1. ANSWER ALL **FOUR (4)** QUESTIONS.
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

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

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- Q1** (a) Differentiate **THREE (3)** methods of concentrating solar panels and analyse their efficiency levels to determine the most effective one. (10 marks)
- (b) Main challenges in solar power are the weather. Briefly explain by illustration how solar power systems help to supply constant energy. (5 marks)
- (c) Recommend **ONE (1)** initiative offered by Malaysia Government to promote the establishment of renewable energy for domestic usage. (10 marks)
- Q2** (a) Define energy and energy efficiency. (3 marks)
- (b) Explain Malaysia Energy Star in terms of:
- (i) Function.
 - (ii) Meaning of each star.
 - (iii) List **FOUR (4)** types of certified appliances.
 - (iv) The authority that certified the energy star.
- (7 marks)
- (c) Integrate the relationship between sustainable energy management and energy audit. (10 marks)
- (d) Appraise **TWO (2)** methods to utilize energy in building. (5 marks)
- Q3** As a Project Manager, a client from Mega Power Technology requests you to prepare a working paper on the construction of a hydropower dam in a rural area. Your job scope is to:
- (a) Sketch and briefly explain the process of hydroelectric generation. (10 marks)
- (b) Verify **SIX (6)** classifications that need to be considered for this area. (12 marks)
- (c) Recommend a backup power supply. (3 marks)

- Q4** (a) Compare renewable energy below in terms of efficiency:
- (i) Ocean
 - (ii) Geothermal
 - (iii) Wind
- (9 marks)
- (b) Energy generation from wind is ideal in airy areas without any obstacles. Sketch and briefly explain **THREE (3)** factors of blade selection with the most effective energy.
- (6 marks)
- (c) Differentiate between onshore and offshore power plant technology.
- (6 marks)
- (d) Based on your opinion, which renewable energy is the most efficient and justify your answer.
- (4 marks)

-END OF QUESTIONS-

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