Universiti Malaysia PAHANG
Engineering • Technology • Creativity

10

Faculty of Electrical & Electronics Engineering
BEE4163 Alternative Energy

Name: _____ **ID: _____**

Section: _____ **Date: _____/_____/2018**

(Failed to complete all the particulars above will be penalized 2 marks)

QUIZ 4

Mapping CO,PO,Domain,KI: CO2,PO4,C3
CO2: Analyze performance of renewable energy system and its components under certain condition. PO4: Conduct investigation into complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions. C3 : Application

Zahid plans to install an off-grid PV system for his gazebo based on 170W NE-170U1 modules. The average daily PSH, inverter efficiency and general system efficiency as 4.5 hours, 93% and 80%, respectively. The necessary electrical appliances are represented in Table 1. **[10 marks]**

Table 1: Electrical appliances

Appliance	Voltage (V)	Power (W)	Unit	Daily Use (hour)
LCD TV	240	80	1	3
DC Fan	12	20	3	5
Laptop	240	65	1	4
LED Bulbs	12	15	4	6

(a) Calculate the total energy demand for his gazebo. Determine the recommended system voltage for this system (12V, 24V or 48V). Show all the calculations.

(b) Find the minimum number of modules required for this system.