Unit 2- STAND ALONE PV SYSTEMS

1.Draw an Energy flow diagram of a PV system used for system design.

2.What are the different parameters have to consider before calculate the battery bank size?

3.What are the different components of Grid connected PV systems?

4.What is central inverter? Draw a diagram

5.What is series string inverter? Draw a diagram

6..What are the different types of solar PV systems? Draw the schematic diagram of each PV systems.

7. Describe the working principle of standalone SPV system with only AC/DC load, electronics control circuit and battery.

8. Describe the working principle of grid connected SPV system with battery storage.

9. Describe the working principle of SPV-diesel generator hybrid system

10. Describe the working principle of SPV hybrid system

11.Find the total number of the PV modules and battery for a house which contains 3 fans of 70 watts each running for 4 hours a day, 3 tubelights of 35 watts each running for 8 hours a day and a refrigerator of 250 watts running for 6 hours a day (consider battery autonomy 1 day). Consider, Inverter Efficiency 93%, system voltage 12 V, Battery DoD = 50%, Battery efficiency = 95%, equivalent daily sunshine hours = 4.5 hours, PV module of 160 Wp. Battery capacity 150 Ah.

12. Find the total number of the PV modules for a factory which contains 1 hp motor (1 hp = 747 W) operating for 4 hours a day, 8 tubelights, each of 50 watts operating for 7 hours a day. Consider a 1 day autonomy for battery. Consider, Inverter Efficiency 93%, system voltage 24 V, Battery DoD = 50%, Battery efficiency = 95% equivalent daily sunshine hours = 4.5 hours, PV module of 200 Wp. Battery capacity

13, Describe the design methodology for SPV system 150 Ah.

14.Draw the schematic diagram of solar street lighting system and list out the different components required for the solar street lighting design.

15.Describe the working principle of solar street lighting system.

16.Draw the schematic diagram of solar lantern system and list out the different (a) components required for the solar lantern design. (b) Describe the working principle of solar lantern system.

17. What is the function of the charge controller? Write down the features of the charge controller.

18.What is the power converter? Give the classifications of power converter. What is the importance of power converters efficiency?