REVIEW QUESTIONS

1. **Does temperature have an effect on battery?**

Temperature is one of the major factors that have an impact on battery performance, shelf life, charging and battery voltage control. At higher temperature batteries will have more chemical activity compared to batteries which operate at the designed temperature.

2.What are primary cells and secondary cells?

Battery which can be discharged only once is called primary cell example: Manganese Zinc and alkaline

Secondary cells are the battery which can be charged and discharged for a number of times example: Lead acid and Nickel cadmium.

3.What is the end of life of the battery?

If a battery cannot be able to hold proper charge or if the battery capacity is falls below 80% of its rated capacity, then it is considered as the end of life of the battery. Many factors affect the life of the battery

- Charging and discharging cycles
- Temperature
- Leakage of the gases or electrolyte
- corrosion of the plates
- over discharge rates

4.What are the requirements of a battery?

A useful battery should fulfill the following requirements:

1. It should be light and compact for easy transport.

2. It should have long life both when it is being used and when it is not used.

3. The voltage of the battery should not vary appreciably during its use.

5.What do you know about battery efficiency?

The overall battery efficiency is specified by two efficiencies: columbic efficiency and voltage efficiency.

6.What are the most used batteries?

Lead acid batteries are the most used type of battery in photovoltaic systems. Although lead acid batteries have a low energy density, only moderate efficiency and high maintenance requirements, they also have a long lifetime and low costs compared to other battery types. One of the singular advantages of lead acid batteries is that they are the most used form of battery for most rechargeable battery applications.

7.What are the most important characteristics of a battery?

The most important battery characteristics are the battery lifetime, the depth of discharge and the maintenance requirements of the battery.

8.What is the capacity of the battery?

battery capacity is a measure of the amount of charge or energy stored in the battery. The fundamental units of battery capacity is coulombs (C), although a more common and useful unit is Amp-hrs.

9.What are the characteristics of Nickel-cadmium batteries?

In some photovoltaic applications, nickel-cadmium may be cost effective on a life cycle/cost basis due to the following characteristics:

- Can be fully discharged
- Long lifetime and long storage life
- Can be overcharged
- Reduced sensitivity to temperature.
- Minimal maintenance requirements.

10.What are the disadvantages of Nickel-cadmium batteries?

- Nickel-cadmium batteries are typically at least twice as expensive as lead-acid batteries.
- Lower efficiency.
- Some nickel-cadmium batteries can require full discharge to prevent "memory" development.

11.What do you know about Columbic efficiency?

The columbic efficiency of battery the ratio of the number of charges that enter the battery during charging compared to the number that can be extracted from the battery during discharging.

MCQ'S:

1. The capacity of a battery is expressed in terms of:

A. Current rating

B. Voltage rating

C. Ampere hour rating

D. None of the above

(C: Ampere hour rating)

2. On overcharging a battery:

A. It will bring about chemical changes in active materials

B. It will increase the capacity of the battery

C. It will raise the specific gravity of the electrolyte

D. None of the above

(D: None of the above)

3. If a battery is to be charged at a much higher rate as compared to normal charging rate, the charging should be restricted to

A. 95% of the capacity of battery

B. 80% of the capacity of battery

C. 55% of the capacity of battery

D. 35% of the capacity of battery

(B. 80% of the capacity of battery)

4. The terminal voltage when the battery is being charged decreases with

A. Increasing temperature

B. Increasing charging rate

C. Increasing stage of charge

D. All of the above

(A. Increasing temperature)

5. The electrode for a battery must be

A. A semi-conductor

B. An insulator

C. A good conductor of electricity

D. A bad conductor of electricity

(C. A good conductor of electricity)