Physics (New Book) - FSC Part 1 Physics Chapter 11 Short Questions Preparation

Q1. Is it possible to construct a heat engine that will not expel heat into the atmosphere?

Ans 1: No, it is not possible to construct a heat engine that will not expel heat into the atmosphere. It is against 2nd law of thermodynamics. A heat engine works only when some of the total heat absorbed from the source is expelled to a sink or atmosphere.

Q2. Define entropy,how it changes with temperature.

Ans 1:

Q3. Define reversible and irreversible process.Give one example of each.

Ans 1: Reversible Process: A Process which can be retracted in exactly reverse order without producing any change in the surroundings is called reversible process.For example, melting of ice into water and freezing of water into ice.
Irreversible Processes: A process which cannot be retracted in the backward direction by reversing the controlling factors is called an irreversible process.
For example, work done against friction.

Q4. What is negative entropy?Give example and its unit.

Ans 1:

Q5. Define Heat Engine.

Ans 1: A device which converts heat energy into mechanical work is called heat engine.

Q6. What happens to the temperature of the room, when an air conditioner in left running on a table in the middle of a room ?

Ans 1: No change will be observed because the heat is absorbed and expelled in the same room.Hence there will be no effect on the room's temperature.

Q7. Give an example of a natural process that involves an increase in entropy .

Ans 1:

Q8. What is adiabatic process?Under what conditions this process occurs?

Ans 1: Adiabatic Process: The process in which no heat enters or leaves the system but the temperature of the system changes. Adiabatic change occurs when the gas expands or is compressed rapidly,particularly when the gas is contained in an insulated cylinder.

Q9. State Carnot's theorem.

Ans 1: It states that no heat engine can be more efficient than a carnot engine operating between the same two temperatures.

Q10. Specific heat of a gas at constant pressure is greater than specific heat at constant volume why?

Ans 1: At constant volume, no work is done and the entire heat is utilized in raising the internal energy of the system.But under constant pressure, heat is not only required to raise the internal energy but also to do work against constant pressure.
Hence specific heat of a gas at constant pressure is greater than specific heat at constant volume.
