CLAIMS

[Claim 1]

A refrigerator comprising:

a refrigerant circuit formed by connecting, by pipes, a compressor, a condenser, an expansion device, and a cooler to allow refrigerant to flow therethrough;

a refrigeration chamber configured to have an internal temperature therein set within a refrigeration temperature range;

a freezing chamber provided below the refrigeration chamber, and configured to have an internal temperature therein set within a freezing temperature range lower than the refrigeration temperature range, the freezing chamber being formed with a freezing chamber opening section for introducing air cooled by the cooler;

a switching chamber provided below the freezing chamber, and configured to have an internal temperature therein changeable within the refrigeration temperature range and the freezing temperature range, the switching chamber being formed with a switching chamber opening section for introducing the air cooled by the cooler,

a controller configured to control the internal temperature of the refrigeration chamber, the freezing chamber, or the switching chamber to reach a predetermined temperature, and

a freezing temperature detection unit configured to detect an internal temperature of the freezing chamber,

the controller including

a switching determination unit configured to determine whether or not a target switching chamber temperature set for the switching chamber is in the freezing temperature range, and

an operation control unit configured to control the internal temperature of the switching chamber to reach the target switching chamber temperature when the switching determination unit determines that the target switching chamber temperature is in the freezing temperature range,

wherein the switching determination unit is configured to determine whether the target switching chamber temperature is in the freezing temperature range, the refrigeration temperature range, or a soft-freezing temperature range, the soft-freezing temperature range being between the freezing temperature range and the refrigeration temperature range,

wherein the operation control unit includes

a compressor control unit configured to control operation of the compressor based on the internal temperature of the freezing chamber detected by the freezing temperature detection unit and on a temperature range of the target switching chamber temperature determined by the switching determination unit, and

wherein the switching chamber is provided with an upper wall heater and a lower wall heater for adjusting a temperature of the switching chamber.

[Claim 2]

The refrigerator of claim 1, further comprising

an air passage provided behind the refrigeration chamber, the freezing chamber, and the switching chamber for allowing cold air to flow through the air passage,

wherein the cooler is provided below the air passage, and

an air blower is installed above the cooler in the air passage in such a manner that a blowing direction of the air blower is set toward the freezing chamber.

[Claim 3]

The refrigerator of claim 1 or 2, further comprising:

an air blower configured to blow air into the refrigeration chamber, the freezing chamber, and the switching chamber; and

a damper configured to adjust an air volume of the air blower flowing into the switching chamber to adjust the temperature of the switching chamber.

[Claim 4]

The refrigerator of any one of claims 1 to 3, further comprising a sub-switching chamber having a capacity smaller than a capacity of the switching chamber, and in which an internal temperature thereof is changeable within the refrigeration temperature range and the freezing temperature range.

[Claim 5]

The refrigerator of any one of claims 1 to 4,

wherein a width of the switching chamber is same as a width of the freezing chamber.