CLAIMS

[Claim 1]

A refrigerator comprising:

a storage compartment including a door designed to open and close and being configured to cool and preserve stored items;

a door opening-closing detector to detect opening and closing of the door of the storage compartment;

a storage unit to receive data about opening and closing of the door detected with the door opening-closing detector and store a number of times the door is opened and closed per given unit-time length for a given number of days; and

a controller,

wherein the controller calculates an average value for the given number of days that is an average of numbers of times the door is opened and closed each given unit-time length for the given number of days from numbers of door opening-closing times stored for every given unit-time lengths in the storage unit,

the controller calculates a latest-time-lengths total value that is a sum of the average values for the given number of days of the numbers of door opening-closing times for latest time lengths specified from a starting point of each unit-time length for every unit-time length,

the controller calculates an immediately following-time-lengths total value that is a sum of the average values for the given number of days of the numbers of door opening-closing times for immediately following time lengths specified from a starting point of each unit-time length for every unit-time length, and

the controller determines, from among sectioned zones each being a sectioned zone of specified time lengths in which the storage compartment is opened and closed, a sectioned zone in which the storage compartment is opened and closed with low frequency based on one of or both of the latest-time-lengths total value and the immediately following-time-lengths total value.

[Claim 2]

The refrigerator of claim 1, wherein the controller, when one minimum of the

latest-time-lengths total value is present, sets a start time of one first unit-time length in which the minimum latest-time-lengths total value is calculated, as a reference point and determines that a period between the specified time lengths before the start time of the first unit-time length and the start time of the first unit-time length is a zone in which the storage compartment is opened and closed with low frequency.

[Claim 3]

The refrigerator of either of claim 1 or 2, wherein the controller, when a plurality of minimums of the latest-time-lengths total values are present and one maximum of the immediately following-time-lengths total value is present, sets a start time of one second unit-time length in which the maximum immediately following-time-lengths total value is calculated as a reference point and determines that a period between the specified time lengths before the start time of the second unit-time length and the start time of the second unit-time length is a zone in which the storage compartment is opened and closed with low frequency.

[Claim 4]

The refrigerator of any one of claims 1 to 3, wherein the controller, when a plurality of minimums of the latest-time-lengths total values are present and a plurality of maximums of the immediately following-time-lengths total values are present, sets a start time of one third unit-time length in which the maximum immediately following-time-lengths total value earliest out of the plurality of the maximum immediately following-time-lengths total values is calculated as a reference point and determines that a period between the specified time lengths before the start time of the third unit-time length and the start time of the third unit-time length is a zone in which the storage compartment is opened and closed with low frequency.

[Claim 5]

The refrigerator of any one of claims 1 to 4, wherein the controller executes special control during a time period determined as a zone in which the storage compartment is opened and closed with low frequency.

[Claim 6]

The refrigerator of claim 5, wherein the controller executes special temperature

control to maintain temperature in the storage compartment at a first set temperature different from a normal temperature during a certain length of time and afterward at a second set temperature different from the first set temperature during a certain length of time, and

wherein the special control is designed to prevent start of the special temperature control in a time zone in which the storage compartment is opened and closed with low frequency.

[Claim 7]

The refrigerator of claim 6, wherein when the door is opened and closed during the special temperature control, the controller redoes the special temperature control from start.

[Claim 8]

The refrigerator of claim 7, wherein when the special temperature control is redone from start, the controller executes temperature equalization control to adjust the temperature in the storage compartment for a day to the normal temperature by keeping the storage compartment at the second set temperature in a next time zone in which the storage compartment is opened and closed with low frequency, and

wherein the special control is equivalent to the temperature equalization control.

[Claim 9]

The refrigerator of any one of claims 6 to 8, wherein the controller determines a living time period other than a time zone in which the storage compartment is opened and closed with low frequency and executes the special temperature control in the living time period.

[Claim 10]

The refrigerator of claim 9, wherein the controller redoes the special temperature control from start during a period extending from the living time period into a time zone in which the storage compartment is opened and closed with low frequency.

[Claim 11]

The refrigerator of claim 5, comprising a defrosting heater to defrost a cooling unit,

wherein the special control is equivalent to defrosting of the cooling unit performed by the defrosting heater.

[Claim 12]

The refrigerator of claim 5, wherein the special control provides operation with a cooling capacity different from a cooling capacity during normal operation.

[Claim 13]

The refrigerator of any one of claims 1 to 12, wherein the controller defines a time zone in which the storage compartment is opened and closed with low frequency as a midnight period of six hours and determines every six hours from an end point of the midnight period as morning, daytime, and evening periods in sequence, and

the controller controls the refrigerator with a predetermined cooling capacity suitable for each of the midnight, the morning, the daytime, and the evening periods.