It depends upon 3 factor

(1) Minimum size of wire due to Mechanical factor

(2) Voltage drop.

(3) Current Carrying Capacity.

(1) Minimum size of wire

According to the Indian electricity Rules 1957 In Domestic lightening Wiring. the minimum size of wire for aluminium Conductor 1.5 mm^2 and for Copper 1.0 mm^2. For Power Wiring for aluminium Conductor minimum size 2.5 mm^2 and for Copper 1.5 mm^2

(2) Voltage drop

In Domestic lightening and fan Wiring

From above calculation

This is 2% + 1 is max Voltage drop

3 Current Carrying Capacity

The size of cable should be such that Maximum Current flows without making much heat in the circuit.

Numerical.

(1) 30 meter aluminium Cable used in wiring of Home Load to be given on it = 30 Ampere
Supply 230 V. Single phase
Frequency 50 Hz
Calculate size of Cable

Sol For 230 V formula (2% of Voltage) + 1
Max Voltage drop 2% + 1 = 5.6 V
For 30 Ampere Current Capacity of aluminium Cable size should be 10 mm^2
For this Cable 1 V drop for every 4.2 meter
& length of Cable is 30m

Net Voltage drop = $\frac{30}{4.2}$ = 7.1 V

& for 30m Cable.

Voltage drop = $\frac{30 \times 1}{5.3}$ = 5.66 V

& this value of voltage drop is applicable to 230 V supply.

Thus for 30 m length & 30 Amper current rating 16 mm^2 or 7/1.70 mm of aluminium wire is used.

length of Cable : 25 m (Copper Cable)

75 Ampera current rating.

Declared supply Voltage = 250 volt single phase

frequency 50 Hz.

Calculate size of Cable

Voltage drop 2% of supply voltage + 1

= 5 + 1 volt = 6 V.

Current rating = 75 Ampere.

Size of Cable (19/0.052) inch.

For this Cable 1 Volt drop for every

1/1.40	10	2.3
1/1.80	15	2.5
1/2.24	20	2.9
1/2.80	27	3.4
1/3.55	34	4.2
7/1.70	43	5.3
7/2.24	59	6.6
7/2.50	69	7.1
7/3.00	91	7.7
19/1.80		
19/2.14	118	9.0
19/2.50	135	9.8
37/2.06	165	10.8
37/2.24	181	11.4
37/2.50	209	12.3
37/2.80	240	13.5
37/3.00	263	14.0
61/2.50	289	14.6

5	4.9
10	3.0
15	3.4
20	3.7
28	4.0
36	4.9
43	5.5
53	7.0
62	7.6
74	8.8
96	10.0