

Answer on Question #52268, Physics, Other

Question

Which of the following types of fuse should be used in a plug to connect an electrical appliance with power rating of 3.4 kW running on a 240V- mains?

13A fuse

16A fuse

6A fuse

14.2A fuse

Solution

The current is

$$I = \frac{P}{U} = \frac{3400 \text{ W}}{240 \text{ V}} = 14.2 \text{ A}$$

Answer

14.2A fuse

16A fuse

Question

12 An auditorium is provided with the following appliances: two 1.0 kW water dispensers, ten 90 W electric fans, ten 60 W lighting bulbs and two 1.4 kW air conditioners. Calculate the current drawn by the appliances on a 240V- mains

12A

9A

17A

22A

Solution

$$I = \frac{P_1}{U} + \frac{P_2}{U} + \frac{P_3}{U} + \frac{P_4}{U} = \frac{1}{U} (P_1 + P_2 + P_3 + P_4)$$

$$I = \frac{2 * 1000 + 10 * 90 + 10 * 60 + 2 * 1400}{240} = \frac{6300}{240} = 26.25 \text{ A}$$

Answer

26.25 A

Question

13 What is the current drawn by a 10 -horse power kernel grinder from a 240 V- mains? (1 horse power = 746 watts)

24A

10A

16A

31A

Solution

$$I = \frac{P}{U} = \frac{746 * 10 W}{240 V} = 31 A$$

Answer

31A

Question

14 Classification of domestic cables is based on their -----
current density

cross-sectional area

physical strength

length

Answer

cross-sectional area

Question

15 Which of the following cables is suitable for connecting a 1.8 kW appliance to a 240V mains

10 A cable

5 A cable

2 A cable

1 A cable

Solution

$$I = \frac{P}{U} = \frac{1800 W}{240 V} = 7.5 A$$

Answer

10 A cable