CASE STUDY

QUESTION 37

By
M. S. Kumar Swamy
TGT(Maths)
KV Gachibowli
CASE STUDY QUESTION 37

Read the following and answer any four questions from (i) to (v)

Aditya decided to complete his Physics Project. He purchased three resistors 4 Ω, 8 Ω and 8 Ω from the shop. Later he purchased a 8 V battery, switch (which works as key) and two ammeters to complete his circuit as shown below:
(i) Find the effective resistance of two 8 resistors in the combination
(a) 2 Ω (b) 4 Ω (c) 3 Ω (d) 5 Ω
\[ R_p = \frac{8 \times 8}{8 + 8} = \frac{64}{16} = 4 \Omega \]

(ii) Find the current flowing through the circuit.
(a) 1.2 A (b) 1.5 A (c) 1 A (d) 2 A
\[ V = IR \]
\[ 8 = I(4 + 4) \Rightarrow I = 1 \text{A} \]

(iii) Find the potential difference across 4 Ω resistance.
(a) 2 V (b) 3 V (c) 4 V (d) 5 V
\[ \text{Potential difference across 4Ω resistor} = IR \]
\[ = 1 \times 4 = 4 \text{ volt} \]
(iv) Find the power dissipated in 4 Ω resistor
(a) 2 W  (b) 3 W  (c) 4 W  (d) 5 W

\[
\text{Power dissipated in 4Ω resistor} = I^2R \\
= (1)^2 \times 4 \\
= 4W
\]

(v) Find the difference in ammeter readings.
(a) 1  (b) 2  (c) 3  (d) No difference

There will be no difference in ammeter readings as the ammeters are connected in series.
KUMAR ONLINE CLASS

STAY HOME

STAY SAFE

STUDY WITH MY VIDEO LESSONS
THANK YOU FOR WATCHING
MY YOUTUBE CHANNEL:
KUMAR ONLINE CLASS

SUBSCRIBE THE CHANNEL TO
GET MORE VIDEO LESSONS