

**Answer on Question 50153, Physics, Electric Circuits** An electronic engineer needs a particular value of capacitance for his new design for the car courtesy light to dim at a particular rate when the car is locked remotely using a wireless key. He needs a capacitance of exactly  $12 \mu\text{F}$ . Which of the four possibilities will give him that value? 1. Two capacitors in parallel, each of value  $24 \mu\text{F}$  2. Two capacitors in series, one of value  $4 \mu\text{F}$  and the other of value  $2 \mu\text{F}$ . 3. Two capacitors in series, each of value  $6 \mu\text{F}$  4. Two capacitors in parallel, each of value  $6 \mu\text{F}$

Solution

When capacitors are in parallel, their capacitances are added. Hence, possibility

4. Two capacitors in parallel, each of value  $6 \mu\text{F}$  will give him  $12 \mu\text{F}$