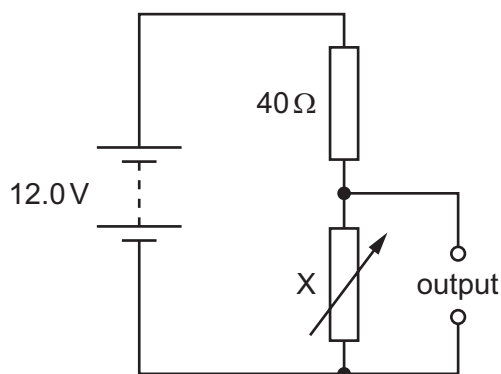


- 38 In the circuit shown, X is a variable resistor whose resistance can be changed from 5.0Ω to 500Ω . The electromotive force (e.m.f.) of the battery is 12.0V . It has negligible internal resistance.



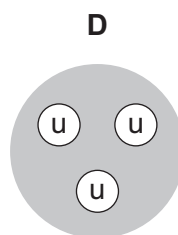
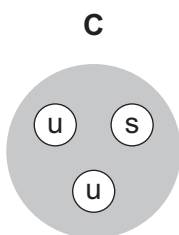
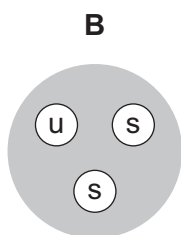
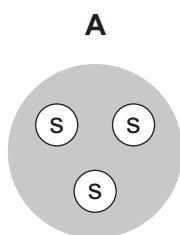
What is the maximum range of values of potential difference across the output?

- A 1.3V to 11.1V
 B 1.3V to 12.0V
 C 1.5V to 11.1V
 D 1.5V to 12.0V
- 39 An unstable nucleus goes through successive decays to become a final, stable nucleus. The initial nucleus and the final nucleus are isotopes of each other. How many α and β^- particles could have been emitted during the decay sequence?

	particle	
	α	β^-
A	1	0
B	1	2
C	2	0
D	2	1

- 40 A hadron has a charge of $-e$ and is composed of three quarks.

What could be the quark composition of the hadron?



key

u = up quark
 s = strange quark





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