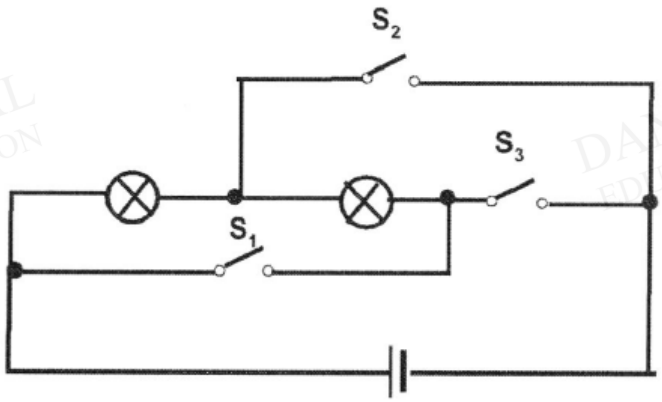
O Level Pure Physics MCQs

Current and DC Circuits Test 2.0

Q1

Two identical light bulbs and three switches S_1, S_2, and S_3 are connected together to a battery in the circuit shown below.



To connect the two bulbs together in parallel, which switch/es should be closed?

A S_1

B S_1, S_2

C S_2

D S_2, S_3

Q2

A piece of wire **X** that is made of a certain material has a resistance of 16 Ω. What is the resistance of another piece of wire **Y** of the same material with half the diameter and twice the length of wire **X**?

A 2.0 Ω

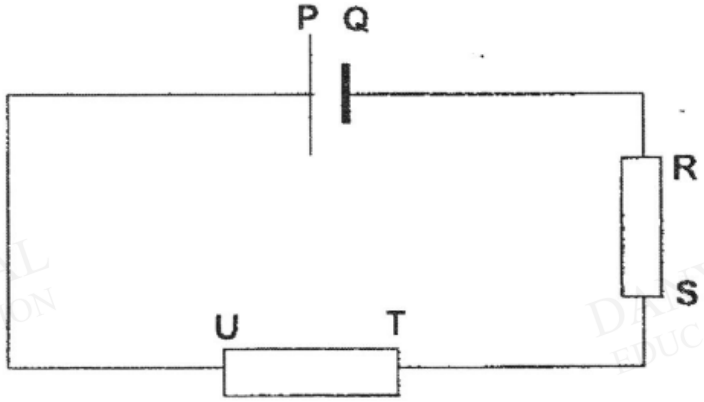
B 12 Ω

C 32 Ω

D 128 Ω

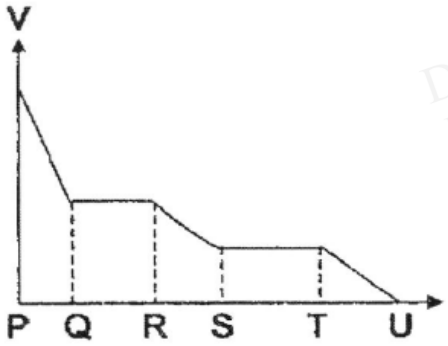
Q3

The diagram shows two resistors connected in series to a cell with wires of negligible resistance. The ends of the cell and resistors are marked **P**, **Q**, **R**, **S**, **T** and **U** correspondingly.

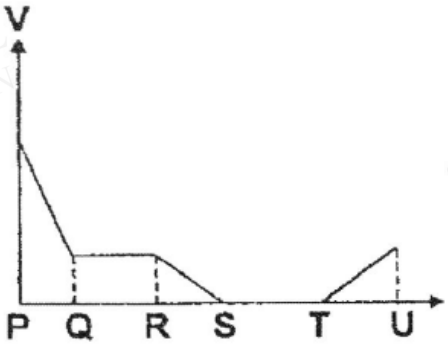


Which of the following graphs correctly shows how the potential, *V*, vary in the regions **PQRSTU**?

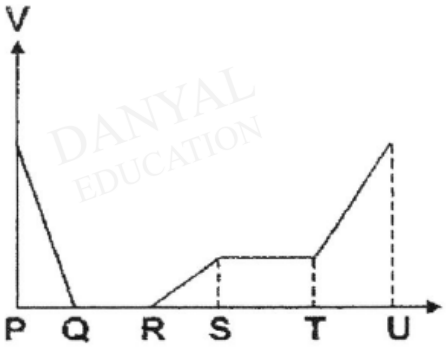
A



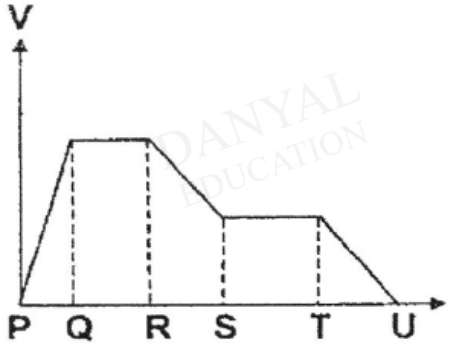
B



C

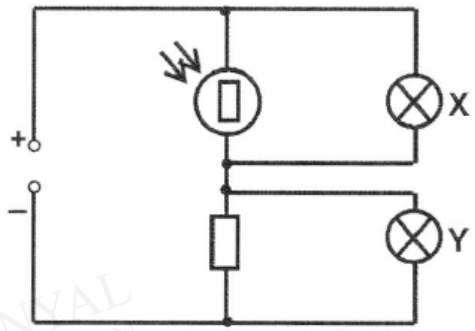


D



Q4

The diagram below shows an electrical circuit consisting of an **LDR**, a fixed resistor and two identical light bulbs connected to a power supply.

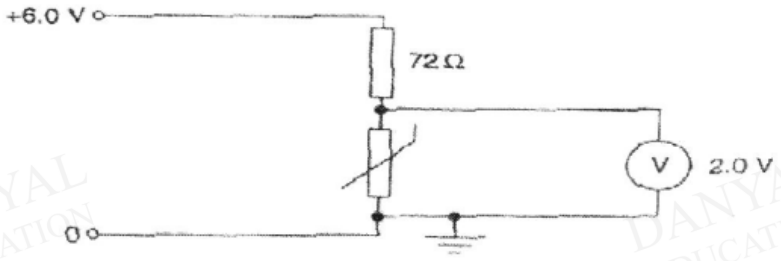


What will happen to the brightness of bulb **X** and **Y** when the light incident on the LDR decreases?

	Bulb **X**	Bulb **Y**
A	brighter	dimmer
B	brighter	brighter
C	dimmer	brighter
D	dimmer	same

Q5

A thermistor is connected in series with a 72 Ω resistor across a constant 6.0 V power supply. When the temperature of the thermistor is 30 °C, the potential difference across it is 2.0 V.



What is the resistance of the thermistor at 30 °C?

A	28 Ω	**B**	36 Ω
C	108 Ω	**D**	148 Ω

Q6

Two identical lamp each is labelled 230 V, 100 W are connected to a 230 V mains supply in series.

What is the current flowing through each lamp?

A	0.22 A	**B**	0.43 A
C	0.87 A	**D**	2.3 A

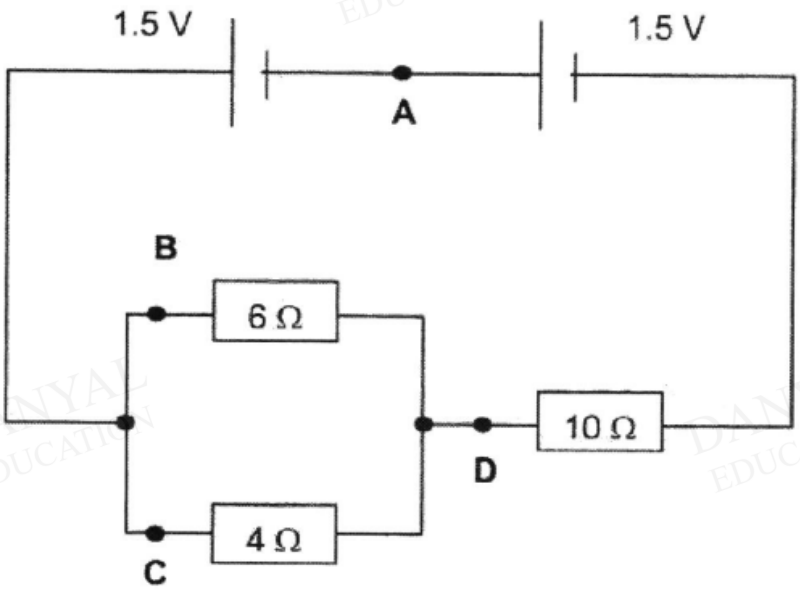
Q7

Why is tungsten preferred to copper when choosing the material for the filament of an electric light bulb?

A Tungsten has a lower resistance than copper
B Tungsten is less likely to combust
C Tungsten has a higher melting point than copper
D Tungsten is more malleable than copper

Q8

In the circuit shown, at which point, A, B, C or D, is the current the smallest?



Q9

One of the following electrical appliances has the largest working resistance. Which one is it?

	Electrical appliance	Power (W)	Voltage(V)
A	Washing machine	3000	250
B	Electric fan	750	240
C	Electric iron	120	240
D	Car headlamp	50	12

Q10

The resistance of a wire is 1.00 Ω at ice point and 1.40 Ω at steam point.

What is the resistance of the wire at 200 °C?

A 1.80 Ω

B 1.96 Ω

C 2.00 Ω

D 2.80 Ω

Answers

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Q1 B

Q2 D

Q3 C

Q4 A

Q5 B

Q6 A

Q7 C

Q8 B

Q9 C

Q10 A