3 Fig. 3.1 shows a simplified diagram of a solar cell.

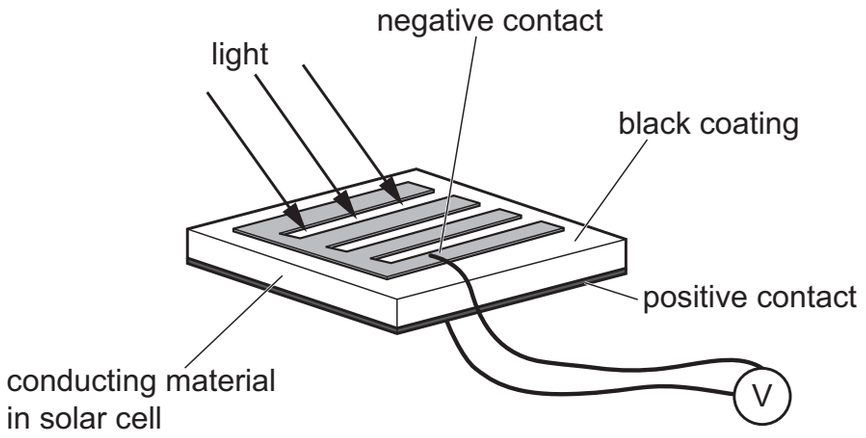

Fig. 3.1

(a) Describe the energy transfer in the solar cell.

..... [2]

(b) Suggest how the black coating allows the solar cell to transfer more energy.

.....

..... [1]

(c) 0.72 kW of light is incident on the solar cell in Fig. 3.1. The cell has an efficiency of 75%.

(i) Calculate the output power of the cell.

output power = ... [2]

(ii) State the meaning of the term kilowatt-hour (kWh).

.....

..... [1]

(iii) Energy is produced by each solar cell for an average of 6 hours per day. A household uses approximately 7400 kWh of electrical energy per year.

Calculate the number of solar cells needed to produce energy for one household. Give your answer as a whole number of solar cells.

number of solar cells = ... [3]

[Total: 9]