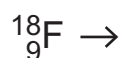


- 7 (a) Fluorine-18 ( $^{18}_9\text{F}$ ) is an isotope that decays to an isotope of oxygen (O) by the emission of a  $\beta^+$  particle.

(i) Complete the nuclear equation for the decay, including all the particles involved.



[3]

(ii) A quark in the fluorine-18 nucleus changes flavour during the decay. State this change of flavour.

..... quark to ..... quark. [1]

(b) A hadron has a charge of  $-2e$ , where  $e$  is the elementary charge.

(i) State and explain whether the hadron is a meson or a baryon.

.....  
.....  
..... [2]

(ii) State a possible quark composition for the hadron.

.....  
..... [1]

[Total: 7]