7 **(a)** Fluorine-18 ($^{18}_{9}F$) is an isotope that decays to an isotope of oxygen (O) by the emission of a β^+ particle.

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

$$^{18}_{9}F \rightarrow$$

[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]