913.

Problem 56.19 (RHK)

We have to find the quark combinations which form (a) λ^0, (b) Ξ^0.

Solution:

Properties of the fundamental quarks are as given in the following table:

Quark	*Symbol*	*Charge (e)*	*Spin*	*Baryon Number*	*Strangeness*
Up	u	$+\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{3}$	0
Down	d	$-\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{3}$	0
Strange	s	$-\frac{1}{3}$	$\frac{1}{2}$	$\frac{1}{3}$	-1

(a) λ^0

As λ^0 is a baryon with baryon number 1, it consists of three quarks, and as its charge is zero and its strangeness is -1, it is described by the quark combination uds.

(b) Ξ^0

As Ξ^0 is a baryon with baryon number 1, it consists of three quarks, and as its charge is zero and its strangeness is -2, it is described by the quark combination uss.