

## Proton (10 Points)

### Up Quark

Electric Charge:  $+2/3$   
Spin:  $1/2$   
Mass: 2.3 MeV  
Half Life: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)

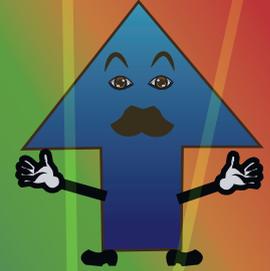


## Neutron (10 Points)

### Up Quark

Electric Charge:  $+2/3$   
Spin:  $1/2$   
Mass: 2.3 MeV  
Half Life: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Up Quark

Electric Charge:  $+2/3$   
Spin:  $1/2$   
Mass: 2.3 MeV  
Half Life: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Down Quark

Electric Charge:  $-1/3$   
Spin:  $1/2$   
Mass: 4.8 MeV  
Half Life: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Down Quark

Electric Charge:  $-1/3$   
Spin:  $1/2$   
Mass: 4.8 MeV  
Half Life: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



### Down Quark

Electric Charge:  $-1/3$   
Spin:  $1/2$   
Mass: 4.8 MeV  
Half Life: Stable

Colour Charge: Yes  
Baryon Number:  $1/3$   
1st generation (1 point)



**Electric Charge: +1**  
**Spin:  $1/2$**   
**Mass: 938.273 MeV**  
**Half Life:  $>10^{31}$  years**

Protons are subatomic particles that are present in the nucleus of every atom.

The number of protons in the nucleus determines the element or type of atom.

**Electric Charge: 0**  
**Spin:  $1/2$**   
**Mass: 939.565 MeV**  
**Half Life: 881.5 s**

Neutrons are subatomic particles that are present in the nucleus of all atoms except hydrogen-1.

The number of neutrons determines the isotope of the element and its stability.