

Question Number	Answer	Mark
11(a)	<p>Opposite charge  <b>Or</b> Opposite lepton number</p> <p>Do not allow Lepton number of an electron = <math>-1</math>  Do not allow charge of an electron = <math>+1</math></p>	<p>(1)</p> <p><b>1</b></p>
11(b)	<p>Charge of particles shown: <math>-1, -1, 0, 0</math></p> <p>Lepton number of particles shown: <math>1, 1, 1, -1</math></p> <p>Charge conserved <b>and</b> lepton number conserved, so possible  <b>Or</b>  But muon lepton number: <math>1</math> does not = <math>-1</math>, not obeyed, so not possible  <b>Or</b>  But electron lepton number: <math>0</math> does not = <math>1+1</math>, not obeyed, so not possible</p>	<p>(1)</p> <p>(1)</p> <p>(1)</p> <p><b>3</b></p>
<b>Total for question 11</b>		<b>4</b>