

XI. Modern Physics

<p>1.</p> <p>a) On the atomic level, energy is emitted or absorbed in discrete packets called _____.</p> <p>b) The energy of a photon is proportional to its _____.</p>	<p>a) <input type="text"/></p> <p>b) <input type="text"/></p>
<p>2. On the atomic level, energy and matter exhibit the characteristics of both _____ and particles.</p>	<p>2. <input type="text"/></p>
<p>Atomic particles are composed of subnuclear particles.</p> <p>3. Protons and neutrons are made up of smaller particles called _____.</p> <p>4. Each elementary particle has a corresponding _____. (opposite charge)</p>	<p>3. <input type="text"/></p> <p>4. <input type="text"/></p>
<p>5. The fundamental source of all energy in the universe is the conversion of _____ into energy.</p>	<p>5. <input type="text"/></p>

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<p>6. Two examples of Baryons</p> <p>7. Baryons are made of _____ quarks</p>	<p>6.</p> <input data-bbox="1015 394 1320 436" type="text"/> <input data-bbox="1015 474 1320 516" type="text"/> <p>7. <input data-bbox="1060 554 1166 596" type="text"/></p>
<p>8. _____ - no charge and less mass than an electron (travel close to the speed of _____)</p>	<p>a) <input data-bbox="1060 785 1365 827" type="text"/></p> <p>b) <input data-bbox="1060 865 1365 907" type="text"/></p>
<p>9. What is the charge on a up, up, down baryon (uud)? (see reference)</p> <p>10. Which combination of quarks could produce a neutral baryon? (1) <i>cdt</i> (2) <i>cts</i> (3) <i>cdb</i> (4) <i>cdu</i></p> <p>11. Find the charge on each baryon: (a) <i>udd</i> (b) $-u-ud$ (c) $-udd$</p>	<p>9. <input data-bbox="1060 1129 1365 1171" type="text"/></p> <p>10. <input data-bbox="1076 1209 1209 1251" type="text"/></p> <p>11.</p> <p>a) <input data-bbox="1060 1402 1190 1444" type="text"/> b) <input data-bbox="1258 1402 1388 1444" type="text"/></p> <p>c) <input data-bbox="1060 1482 1190 1524" type="text"/></p>