Covalent Bonding

1 Methane gas is supplied to homes for the purpose of heating and cooking. Methane is a compound made of carbon and hydrogen.

The diagram shows an atom of carbon.

Table 1 shows the sub atomic particles that are present in an atom of carbon.

<table>
<thead>
<tr>
<th>Particle</th>
<th>Location</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutron</td>
<td>Nucleus</td>
<td>Neutral or no charge or 0 [1]</td>
</tr>
<tr>
<td>Proton</td>
<td>Nucleus [1]</td>
<td>+1</td>
</tr>
</tbody>
</table>

1 (a) (i) Complete the table. [4 marks]

1 (a) (ii) Methane gas is made of molecules.

What is a molecule? [2 marks]

Two or more atoms/elements [1] Ionic compounds don't have molecules.
Chemically joined/combined [1]

1 (a) (iii) Carbon and hydrogen atoms in methane are held together by bonds.

Complete the sentence below by choosing the correct word from the given list. [1 mark]

\[\text{donating} \quad \text{sharing} \quad \text{gaining} \quad \text{losing}\]

The bonds between carbon and hydrogen atoms in methane gas are created by sharing [1] electrons.

(Total 7 marks)

End