<table>
<tr><th colspan="2">Question</th><th></th><th>Marks</th></tr>
<tr><td>1</td><td>1</td><td>All marks AO1 (understanding)

<table>
<tr><th>Statement</th><th>True or False?</th></tr>
<tr><td>All regular languages can be represented using a finite state machine without outputs.</td><td>True</td></tr>
<tr><td>The set of strings defined by a regular language is always finite in size.</td><td>False</td></tr>
<tr><td>There are some languages which can be represented in Backus-Naur Form (BNF) that are not regular languages.</td><td>True</td></tr>
</table>

Mark as follows:

1 mark: two rows correct
1 mark: all three rows correct</td><td>2</td></tr>
<tr><td>1</td><td>2</td><td>Mark is for AO2 (analyse)

<sentence> ::= <np><v> | <v><np>
//
<sentence> ::= <v><np> | <np><v>

R. any answers that consist of more than one rule</td><td>1</td></tr>
<tr><td>1</td><td>3</td><td>Mark is for AO2 (apply)

<table>
<tr><th>String</th><th>Valid sentence (Y/N)?</th></tr>
<tr><td>cuddle the cat</td><td>Y</td></tr>
<tr><td>drank a human</td><td>Y</td></tr>
<tr><td>the cat slept</td><td>Y</td></tr>
<tr><td>cat or dog</td><td>N</td></tr>
</table>
</td><td>1</td></tr>
</table>

Question			Marks

1	4	**Mark is for AO2 (apply)**
		
		Modify the existing rule for `np`:
		`<np> ::= <d><n> | <n>`
		//
		Modify an existing rule for `sentence`:
		`<sentence> ::= <np><v> | <n><v>`
		//
		Modify an existing rule for `sentence`:
		`<sentence> ::= <v><np> | <n><v>`
		//
		Modify an existing rule for `sentence`:
		`<sentence> ::= <np><v> | <v><np> | <n><v>`
		//
		Create a new rule:
		`<sentence> ::= <n><v>`
		//
		Create a new rule:
		`<np> ::= <n>`
			1

1	5	**All marks for AO2 (apply)** **Mark as follows:** **2 marks:** 8x4x3x8x4 // 2x4x4x3x2x4x4 // 3072 **If final answer is incorrect then award a maximum of 1 mark for working:** **1 mark:** for calculating that there are 8 noun phrases // for calculating that there are 4x2 noun phrases **1 mark:** for multiplying an incorrectly calculated number of noun phrases by the number of noun phrases, by 3, by 4 and by 4 again	2
1	6	**Mark is for AO2 (apply)** Infinitely more;	1