



**A-level**

**COMPUTER SCIENCE**

**Paper 2**

**7517/2**

**Insert**

**FIGURE 5 for use in answering Question 3.**

**FIGURE 6 for use in answering Question 5.**

**FIGURE 7 for use in answering Question 7.**

**FIGURE 11 for use in answering Question 11.**

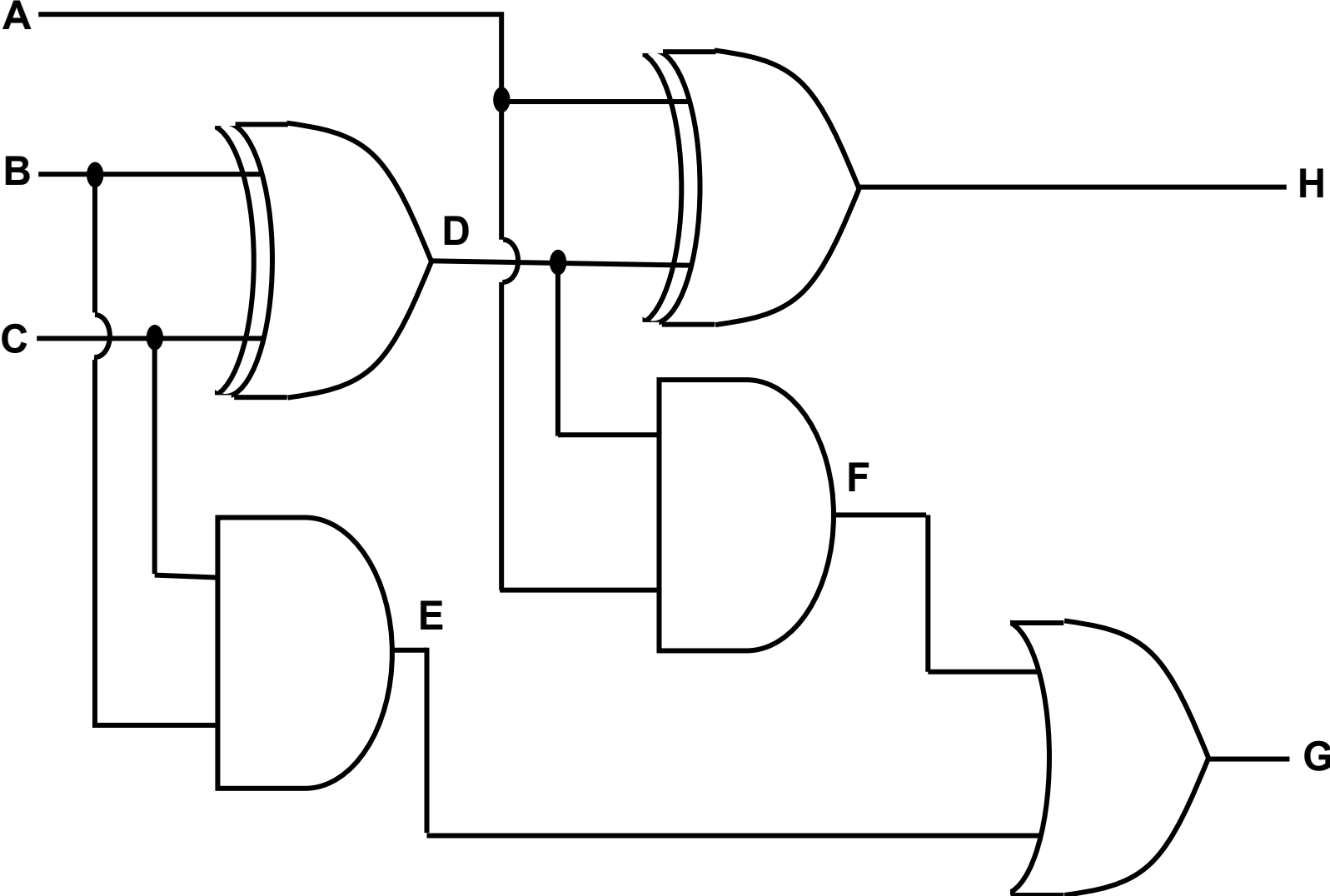
**FIGURE 12 for use in answering Question 12.**

**TABLE 3 for use in answering Question 12.**

**TABLE 4 for use in answering Question 12.**

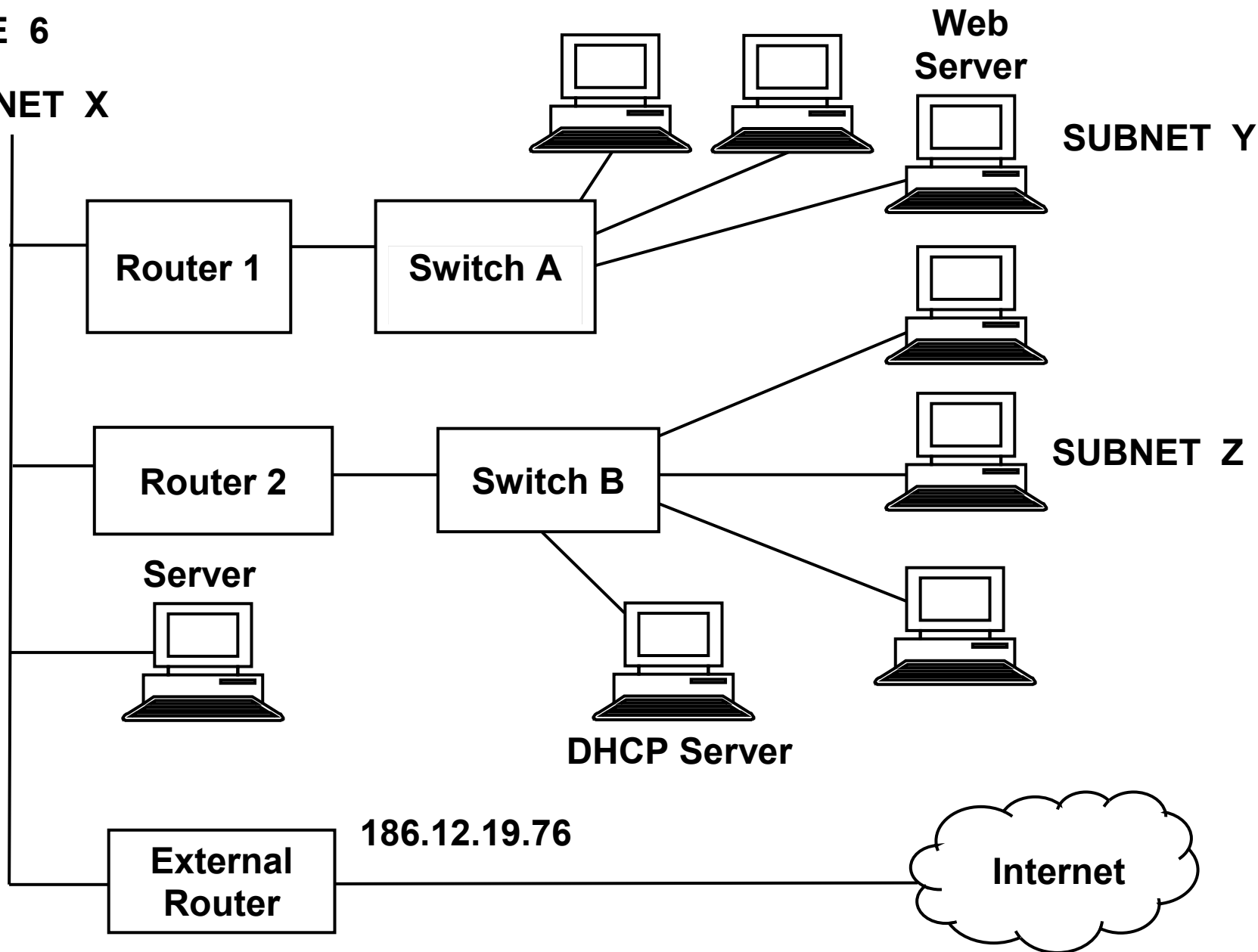
**[Turn over]**

FIGURE 5



**FIGURE 6**

**SUBNET X**



3

**[Turn over]**

## FIGURE 7

**Athlete(AthleteID, Surname, Forename, DateOfBirth, Gender, TeamName)**

**EventType(EventTypeID, Gender, Distance, AgeGroup)**

**Fixture(FixtureID, FixtureDate, LocationName)**

**EventAtFixture(FixtureID, EventTypeID)**

**EventEntry(FixtureID, EventTypeID, AthleteID)**

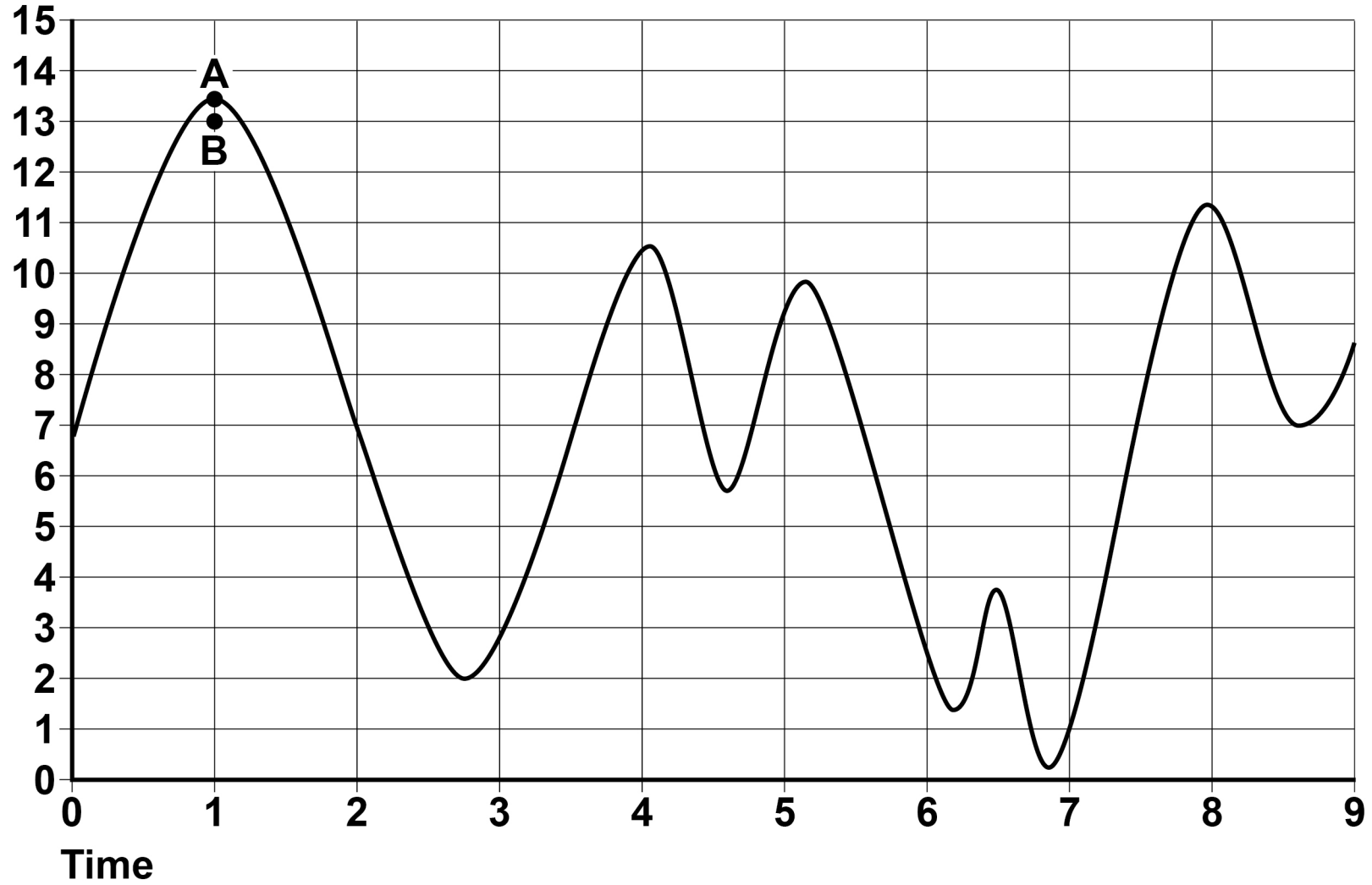
➤

- Each Athlete, EventType and Fixture is identified by a unique identity number, for example AthleteID for athletes.
- An EventType is a type of event, such as Boys' 100m Under 15 race.
- If an athlete wants to take part in an event at a particular fixture, then an entry is created in the EventEntry relation to represent this.

**FIGURE 11**

**Amplitude**

**Analogue signal**



**[Turn over]**

**FIGURE 12**

```
IF characterCode >= 65 AND characterCode
<= 90 THEN
    encryptedCode ← characterCode +
keyValue
    IF encryptedCode > 90 THEN
        encryptedCode ← encryptedCode - 26
    ENDIF
ELSE
    encryptedCode ← characterCode
ENDIF
```

**TABLE 3**

<b>A</b>	<b>65</b>
<b>B</b>	<b>66</b>
<b>C</b>	<b>67</b>
<b>D</b>	<b>68</b>
<b>E</b>	<b>69</b>
<b>F</b>	<b>70</b>
<b>G</b>	<b>71</b>
<b>H</b>	<b>72</b>
<b>I</b>	<b>73</b>
<b>J</b>	<b>74</b>
<b>K</b>	<b>75</b>
<b>L</b>	<b>76</b>
<b>M</b>	<b>77</b>

<b>N</b>	<b>78</b>
<b>O</b>	<b>79</b>
<b>P</b>	<b>80</b>
<b>Q</b>	<b>81</b>
<b>R</b>	<b>82</b>
<b>S</b>	<b>83</b>
<b>T</b>	<b>84</b>
<b>U</b>	<b>85</b>
<b>V</b>	<b>86</b>
<b>W</b>	<b>87</b>
<b>X</b>	<b>88</b>
<b>Y</b>	<b>89</b>
<b>Z</b>	<b>90</b>

**[Turn over]**

**TABLE 4 Standard AQA assembly language instruction set**

LDR Rd, <memory ref>	<b>Load the value stored in the memory location specified by &lt;memory ref&gt; into register d.</b>
STR Rd, <memory ref>	<b>Store the value that is in register d into the memory location specified by &lt;memory ref&gt;.</b>
ADD Rd, Rn, <operand2>	<b>Add the value specified in &lt;operand2&gt; to the value in register n and store the result in register d.</b>
SUB Rd, Rn, <operand2>	<b>Subtract the value specified by &lt;operand2&gt; from the value in register n and store the result in register d.</b>
MOV Rd, <operand2>	<b>Copy the value specified by &lt;operand2&gt; into register d.</b>
CMP Rn, <operand2>	<b>Compare the value stored in register n with the value specified by &lt;operand2&gt;.</b>
B <label>	<b>Always branch to the instruction at position &lt;label&gt; in the program.</b>



B<condition> <label>	<p><b>Branch to the instruction at position &lt;label&gt; if the last comparison met the criterion specified by &lt;condition&gt;. Possible values for &lt;condition&gt; and their meanings are:</b></p> <p>EQ: equal to                      NE: not equal to  GT: greater than                  LT: less than</p>
AND Rd, Rn, <operand2>	<b>Perform a bitwise logical AND operation between the value in register n and the value specified by &lt;operand2&gt; and store the result in register d.</b>
ORR Rd, Rn, <operand2>	<b>Perform a bitwise logical OR operation between the value in register n and the value specified by &lt;operand2&gt; and store the result in register d.</b>
EOR Rd, Rn, <operand2>	<b>Perform a bitwise logical XOR (exclusive or) operation between the value in register n and the value specified by &lt;operand2&gt; and store the result in register d.</b>
MVN Rd, <operand2>	<b>Perform a bitwise logical NOT operation on the value specified by &lt;operand2&gt; and store the result in register d.</b>

**[Turn over]**

LSL Rd, Rn, <operand2>	<b>Logically shift left the value stored in register n by the number of bits specified by &lt;operand2&gt; and store the result in register d.</b>
LSR Rd, Rn, <operand2>	<b>Logically shift right the value stored in register n by the number of bits specified by &lt;operand2&gt; and store the result in register d.</b>
HALT	<b>Stops the execution of the program.</b>

**Labels: A label is placed in the code by writing an identifier followed by a colon (:). To refer to a label, the identifier of the label is placed after the branch instruction.**

## Interpretation of <operand2>

<operand2> can be interpreted in two different ways, depending on whether the first character is a # or an R:

- # – use the decimal value specified after the #, eg #25 means use the decimal value 25.
- R<sub>m</sub> – use the value stored in register <sub>m</sub>, eg R<sub>6</sub> means use the value stored in register 6.

The available general purpose registers that the programmer can use are numbered 0 to 12.

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