2 Numbers are stored in a computer system using binary floating-point representation with:

- 12 bits for the mantissa
- 4 bits for the exponent
- two's complement form for both the mantissa and the exponent.

(a) Write the normalised floating-point representation of the following positive binary number using this system.

0.00000001110101101

Mantissa **Exponent**

[2]

(b) Calculate the normalised binary floating-point representation of –76.1875 in this system. Show your working.

Mantissa **Exponent**

Working .....

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[4]

2 Numbers are stored in a computer using binary floating-point representation with:

- 10 bits for the mantissa
- 6 bits for the exponent
- two's complement form for both the mantissa and the exponent.

(a) Write the normalised floating-point representation of the following binary number using this system.

0.00000011010111

Mantissa **Exponent**

[2]

(b) Calculate the normalised binary floating-point representation of –25.3125 in this system. Show your working.

Mantissa **Exponent**

Working .....

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[4]

2 Numbers are stored in a computer using binary floating-point representation with:

- 12 bits for the mantissa
- 4 bits for the exponent
- two's complement form for both the mantissa and the exponent.

(a) Calculate the normalised binary floating-point representation of +124.4375 in this system.
Show your working.

Mantissa												Exponent			

Working .....

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[3]

(b) Calculate the denary value of the following normalised binary floating-point number.
Show your working.

Mantissa												Exponent			
1	0	1	0	0	0	1	0	1	0	1	1	0	1	1	0

Working .....

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Denary value .....

[3]

1 Numbers are stored in a computer using binary floating-point representation with:

- 10 bits for the mantissa
- 6 bits for the exponent
- two's complement form for both the mantissa and the exponent.

(a) Calculate the normalised binary floating-point representation of +201.125 in this system.

Show your working.

Mantissa										Exponent					

Working .....

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[3]

(b) Calculate the denary value of the given normalised binary floating-point number.

Show your working.

Mantissa										Exponent					
1	0	1	0	1	1	0	0	1	1	0	0	0	1	0	1

Working .....

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Answer .....

[3]

4 Numbers are stored in a computer using binary floating-point representation with:

- 12 bits for the mantissa
- 4 bits for the exponent
- two's complement form for both the mantissa and the exponent.

(a) Calculate the denary value of the given normalised binary floating-point number.

Show your working.

Mantissa												Exponent			
0	1	0	0	0	1	1	1	0	1	1	1	0	1	1	1

Working .....

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Answer .....

[2]

(b) Calculate the normalised binary floating-point representation of –49.1875 in this system.

Show your working.

Mantissa												Exponent			

Working .....

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[4]