Hexadecimal Homework

You should refer to the **homework policy** for details on how this homework should be submitted.

Attempt all questions and show all working.

Question 1

Write the following binary numbers in hexadecimal.

1. 0101 1001
2. 0110 1101
3. 1111 1010 1100 1110
4. 1010 0001 1101 1110

Answer 1

0101₂ == 5₁₀ 1001₂ == 9₁₀

5,9₁₆

Answer 2

0110₂ == 6₁₀ 1101₂== 13₁₀

13₁₀ == D₁₆ **6,D₁₆**

Answer 3

1111₂ == 15₁₀ 1010₂ == 10₁₀ 1100₂ == 12₁₀ 1110₂ == 14₁₀

15₁₀ == F₁₆
10₁₀==A₁₆
12₁₀==C₁₆
14₁₀==E₁₆

FACE₁₆

Answer 4

1010₂==10₁₀
0001₂==1₁₀
1101₂==13₁₀
1110₂==14₁₀

10₁₀==A₁₆

1₁₀==1₁₆
13₁₀==D₁₆
14₁₀==E₁₆

A1DE₁₆

(**8 marks**)

Question 2

Write the following denary numbers in hexadecimal.

1. 37₁₀
2. 72₁₀
3. 140₁₀
4. 119₁₀

Answer 1

37₁₀== (37₁₀//16) == 2₁₆
(37₁₀%16)== 5₁₆

25₁₆

Answer 2

72₁₀== (72₁₀//16) == 4₁₆
(72₁₀%16)== 8₁₆

48₁₆

Answer 3

140₁₀== (140₁₀//16) ==
8₁₆ (140₁₀%16)== 12₁₀

12₁₀= C₁₆

8C₁₆

Answer 4

119₁₀== (199₁₀//16) ==
7₁₆ (119₁₀%16)== 7₁₆

77₁₆

(**8 marks**)

Question 3

Write the following hexadecimal numbers in binary.

1. 5A₁₆
2. B0D₁₆
3. FFFF₁₆
4. 2C8E₁₆

Answer 1

5A₁₆

5₁₆==0101₂
A₁₆==1010₂

101 1010 ₂

Answer 2

B0D₁₆

B₁₆==1011₂
0₁₆==0000₂
D₁₆==1101₂

1011 0000 1101 ₂

Answer 3

FFFF₁₆

F₁₆==1111₂

1111 1111 1111 1111₂

Answer 4

2C8E₁₆

2₁₆==0010₂
C₁₆==1100₂
8₁₆==1000₂
E₁₆==1110₂

0010 1100 1000 1110₂

(**8 marks**)

Question 4

Write the following hexadecimal numbers in denary.

1. 28₁₆
2. A4₁₆
3. 5B₁₆
4. 12B₁₆

Answer 1

28₁₆

(2₁₀*16¹) ==32₁₀
(8₁₀16⁰) ==8₁₀

32₁₀ + 8₁₀ ==**40₁₀**

Answer 2

A4₁₆ A₁₆== 10₁₀

(10₁₀*16¹) ==160₁₀
(4₁₀16⁰) ==4₁₀

160₁₀ + 4₁₀ ==**164₁₀**

Answer 3

5B₁₆ B₁₆== 11₁₀

(5₁₀*16¹) ==80₁₀
(11₁₀16⁰) ==11₁₀

80₁₀ + 11₁₀ ==**91₁₀**

Answer 4

12B₁₆ B₁₆== 11₁₀

(1₁₀*16²) ==256₁₀
(2₁₀16¹) ==32₁₀
(11₁₀*16⁰) ==11₁₀

256₁₀ + 32₁₁ ==**91₁₀**

(**8 marks**)

Total 24 marks