

EE 1910

Dr. Johnson

Homework 5

1 – Evaluate each of the following expressions – given:

30pts

int8_t a; a = 4;
int8_t b; b = 100;
int8_t c; c = 50;

Decimal value

b +

???

a / b

int division

0

c % b

50/100 = 0r50

50

c * a

“200” -> 8 bit overflow
1100 1000 -> (-)0011 1000 = -56

-56

c >> 3

0011 0010 -> 0000 0110

6

3 << a

0000 0011 -> 0011 0000

48

~a

0000 0100 -> 1111 1011 -> -5

-5

a | b - 2*c

0000 0100 bit-OR 0000 0000

4

a && (b - 3*c)

4 logic-and 100 - (-106)
“206” -> -50 -> T

1 or T

2 – Evaluate each of the following expressions – given:

40pts

```
int8_t a;      a = 5;
int8_t b;      b = 4;
int8_t c;      c = 3;
uint8_t d;     d = 240;
uint8_t e;     e = 11;
uint8_t f;     f = 12;
char g;        g = 'c';
char h;        h = 'C';
float i;       i = 1.212;
float j;       j = 7.55;
```

Decimal value

$a*b/c|a\&b-c\%a+b$

$(a*b/c) | a \& (b - (c\%a) + b)$
 $6 | 5 \& (4 - 3 + 4)$
 $6 | 5 \& 5$
 $6 | 5 \rightarrow 7$

7

$d-e\%f>>3<<3\%2$

$((~) - (e\%f))>>3<<(3\%2)$
 $(240-11)>>3<<1$
 $(229 >>3)<<1$
 $(1110\ 0101 >>3) << 1$
 $00011100 <<1 \rightarrow 00111000$
 56

56

$g/h+g-h+44$

$99/67 + 99 - 67 + 44$
 $1 + 76 \rightarrow 77$

77 (M)

$i/j+j*5-2*i/.5$

$1.212/7.55 + 7.55*5 - 2*1.212/0.5 \rightarrow 33.062531$

33.062531

3 – Evaluate each expression individually.

30pts

```
int a;    a = 4;    float c;    c = 1.1;    char e;    e = 'a';
int b;    b = 5;    float d;    d = 2.2;    char f;    f = 'C';
```

Decimal value

`--a - b + e++` $(--a) - b + (e++)$
 $3 - 5 + 97 = 95$

95

`b+++a- - -e` $(b+++)(a- - -) - e$
 $5 + 4 - 97 = -88$

-88

`b << a + 1` $0... 0000 0101 \rightarrow 0... 1010 0000$
 $128+32 = 160$

160

`a >= a + e - c` $a >= (a+e-c)$
 $4 >= (4 + 97 - 1.1) \rightarrow F$

0

`e % a * f / f % a` $((e \% a) * f) / f \% a$
 $((97 \% 4) * 67) / 67 \% 4$
 $((1 * 67) / 67) \% 4$
 $(67 / 67) \% 4$
 $1 \% 4$
 1

1