Patuakhali Science and Technology University

Course CIT 111

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Assignment: 04

Title: Chapter 4 (theory)

Chapter 4

MULTIPLE CHOICE QUESTIONS

4.1 which of the following is not an arithmetic operator?

Ans: (d) All of the above are arithmetic operators.

4.2 Which of the following is an assignment operator?

Ans: (a) =

4.3 Which of the following statement is correct about the increment and decrement operator?

Ans: (d) All the above are correct.

4.4 Which of the following operators has the lowest level of precendence?

Ans: (d) ? =

4.5 Which of the following operators is used to determine the size of the operand?

Ans: sizeof

REVIEW QUESTIONS

(a) The expression !(x<=y) is same as the expression x>y [True]

(b) A unary expression consists of only one operand with no operators. [False]

(c) All arithmetic operators have the same level of precedence. [False]

(d) An expression statement is terminated with a period [False]

(e) The operators <=, >= and != all enjoy the same level of priority. [False]

(f) The modulus operator % can be used only with integers. [True]

(g) In C, if a data item is zero, it is considered false. [True]

(h) During the evaluation of mixed expressions, an implicit cast is generated automatically. [True]

(i) An explicit cast can be used to change the expression. [True]

(j) Associativity is used to decide which of several different expressions is evaluated first. [True]

(k) Parentheses can be used to change the order of evaluation expressions. [True]

(l) During modulo division, the sign of the result is positive, if both the operands are of the same size. ~~[True]~~ [False]

4.2 (a) The expression containing all the integer operands is called integer arithmetic expression.

(b) C supports as many as 6 relational operators.

(c) The sizeof operator returns the number of bytes the operand occupies.

(d) Precedence is used to determine the order in which different operators in an expression are evaluated.

(e) An expression that combines two or more relational expression is termed as Relational expression.

(f) The use of casting on a variable can be changed ~~by using~~ its type in memory.

(g) The order of evaluation can be changed by using parenthesis in an expression.

(i) . () and , operators have the highest and lowest levels of precedence.

(j) <= is a relational operator while && is a logical operator.

(k) A division operation involving integer operands truncates the resultant value. This situation can be avoided by using type casting.

(l) The result of a relational expression is either 0 or 1.

4.3 Given the statement

int a = 10, b = 20, c;

Determine whether each of the following statements are true and fals

(a) The statement a = +10 is valid [False]

(b) a + 4/6 * 6/2 evaluates to 11 [False]

(c) b + 3/2 * 2/3 evalates to 20 [True]

(d) a+=b gives the values 30 to a and 20 to b [True]

(e) ++a++ ; gives the value 12 to a [False]

(f) a = 1/b assign the value 0.5 to a [False]

4.4 Declared a as int and b as float, state whether the following statements are true or f.

(a) a = 1/3 + 1/3 + 1/3 ; assigns 1 to a [False]

(b) b = 1.0/3.0 + 1.0/3.0 + 1.0/3.0 ; 1.0 to b [True]

(c) b = 1.0/3.0 * 3.0 ; 1.0 to b [True]

(d) b = 1.0/3.0 + 2.0/3.0 ; 31.0 to b [True]

(e) a = 15/10.0 + 3/2 ; 3 to a [False]

4.5 Which of the following expressions are true?

(a) !(5+5 >= 10) [False]

(b) 5+5 == 10 || 1+3 == 5 [True]

(c) 5>10 || 10<20 && 3<5 [True]

(d) 10 != 15 && !(10<20) || 15>30 [False]

4.6 Arithmetic expressions

(a) 25/3 %2 → 0

(b) + 9/4 + 5 → 7

(c) 7.5 % 3 → Not valid

modulo operator only works with int.

(d) 14 % 3 + 7 % 2 → 3

(e) -14 % 3 → -2

(f) 15.25 + - 5.0 → 10.25

(g) (5/3) * 3 + 5 % 3 → 5

(h) 21 % (int) 4.5 → 1

4.7 C assignment statements

(a) Area = 3.1459 * r * r + 2 * 3.14159 * r * h

(b) Torque = (2 * m_1 * m_2) / (m_1 + m_2)

(c) side = sqrt (a * a + b * b - 2 * a * b * cos(w))

(d) Energy = mass * (acceleration * height + (velo. velo. / 2))

4.8 Unnecessary parentheses

(a) ((x - (y/5) + z) % 8) + 25

(b) ((x - y) * p) + q

(c) (m * n) + (- x / y)

(d) x / (3 * y)

4.9 Determine the value of each of the following logical expressions if a=5, b=10 and c=-6

(a) a>b && a<c [False]

(b) a<b && a>c [True]

(c) a==c || b>a [True]

(d) b>15 && c<0 || a>0 [True]

(e) (a/2.0==0.0 && b/2.0 != 0.0) || c<0.0 [True]

4.10 Ans:
```
d
}
100
```

4.11 Ans:
```
110
112
```

4.12 Ans: 1

4.13 Ans: 200

4.14 Ans: x<=y

Here the first condition will only be executed if x is greater than y. But here both of them are same. So the else part is executed.

4.15 output: TRUE

Because instead of comparining the value of n, x is being assigned 20.

4.16
```
2
1
4
```

4.17
```
-40
40
```

DEBUGGING EXECISES

4.1 what is the errors if any in the following segmant?

```
int x= 10;
float y = 4.25;
x = y % x;
```

Ans: Modulo division can only be applied among integers. Here y is a float point so it ~~can~~ needs to be converted to integer like,

```
x = y % (int) x;
```

4.2
```
if (n == 1 & n != 0)
    printf("Ok");
```

Ans: One ampersand (&) is missing. It should be like,

```
if (m==1 && n!=0)
```

~~4.3~~(b) if (x =< 5)

```
printf("Jump");
```

Ans: Here the wrong ~~conditional~~ relational operator is used (=<) ~~is~~ instead of (<=). It should be,

```
if (x<=5)
```

4.3 (a) x = y = z = 0.5, 2.0, -5.75;

Ans: Error. We have to ~~declare~~ assign separately,

```
x = 0.5, y = 2.0, z = -5.75;
```

(d) p * = x/y;

Ans: There is no space between * and =

(e) s = / 5;

Ans: s /=5;

(f). a = b++ -c * 2

Ans: ; (semicolon) missing.

INTERVIEW QUESTION

4.1 What will be the values of x and y after following statements are executed?

```
x = 5;
y = x++ + ++x + x++;
```

Ans: The value of x will be 19. First x = 5 and it'll be 7 at the same time for the next two so y = 5 + 7 + 7. Thus value will be 19

4.2 Evaluate the result for the following logical expression, !(1 && !(0 || 1))

Ans: The output will be 1.

4.3 What is | value?

Ans: The vertical bar is the bitwise OR operator. It is used to perform a bitwise OR operator.

4.4 What is the difference between | and || operator?

Ans: The vertical bar is the bitwise OR operator while the || is the logical OR operator.

4.5 Write a code for swapping two variable values without using a third variable:

Ans:

```
#include <stdio.h>
int main()
{   int x, y;
    printf("Enter the values of x and y: ");
    scanf("%d %d", &x, &y);
    printf("Before swapping x=%d, y=%d\n", x, y);
    x = x+y;
    y = x-y;
    x = x-y;
    printf("After swapping x=%d, y=%d\n", x, y);
    return 0;
}
```

4.6 What would be the value of b.

```
int a=5, b;
b = ++a + ++a;
```

Ans: b will be 13 (6 + 7)