Keywords, Identifier, Literals, Operators and Expression Assignment

1. Choose all valid identifiers
   a. int int

   Ans: invalid

   b. int _numvalue

   Ans: Valid

   c. float price_money

   Ans: Invalid

   d. char name1234567890123456789012345678901234567890

   Ans: Valid

   e. char name value

   Ans: Invalid

   f. char $name

   Ans: Invalid

2. What is the meaning of the following keywords, show the usage
   a. Auto

   Ans: used to define local variables with automatic storage duration, functions are created and deleted automatically within their scope

   b. Extern

   Ans: used to declare a global variable or function in another file, allowing it to be used across multiple files.

   c. Volatile

   Ans: used to inform the compiler that the value of variable may change at any time so the compiler should not optimize the code involving this variable.

   d. Sizeof

   Ans: It is an operator that returns the size, in bytes, of data type or variable.

e. Const

Ans: It is used to declare variables whose values cannot be changed after initialization

3. Explain the difference between the following variables.
   a. char *ptr = “ABC”;
   b. char arr[]=”ABC”;

   (i) Can you manipulate the contents of ptr? Why?

   Ans: No, we cannot directly manipulate the contents of ptr.

   ptr would lead to undefined behavior and might result in a segmentation fault

   (ii) Can you manipulate the contents of arr? Why?

   Ans: Yes, we can manipulate the contents of arr.

   Since, arr is an array of characters, we can modify the individual elements of arr.

   (iii) Which one of the above is a string literal?

   Ans: The string literal is “ABC”.

4. Predict the output of the following code .

```
void main()
{
    //set a and b both equal to 5.
    int a=5, b=5;

    //Print them and decrementing each time.
    //Use postfix mode for a and prefix mode for b.
    printf("\n%d %d",a--,--b);
    printf("\n%d %d",b++,--b);
}
```

Ans: 4 4

4 3

5. Refer the code snippet. It fails with error. Fix it.

```
#include<stdio.h>
int main()
{
    int i,k;
        const int num;
/*      for(i = 0;i < 9;i++)
    {
         k = k + 1;
    } */
    num = num + k; /* Compiler gives the error here */
    printf("final value of k:%d\n",k);
    printf("value of num:%d\n",num);
    return 0;
}
```

Ans:

```
#include<stdio.h>
 int main(){
        int i, k, num;
        num = num+k;
        printf(“final value of k: %d\n”,k);
        printf(“value of num:%d\n”,num);
        return 0;
 }
```

6. Consider the following code snippet. Evaluate the value of f1, f2 and f3.

```
int main()
{
        int i = 10;
        int j = 3;
        float f1 = i / j;
        float f2 = (float ) i / j;
        float f3 = (float ) (i / j);
}
```

Ans: f1 = 3.0

f2 = 3.3333

f3 = 3.0