GULF SAHODAYA EXAMINATION (SAUDI CHAPTER) – 2016

COMPUTER SCIENCE

Class : XI  Max. Marks : 70
Time : 3 Hours

Instructions:
1. All questions are compulsory.
2. Programming must be done in C++.

Questions:
1. What is the difference between data and information? 1
2. Name any four types of operating systems. 1
3. Why primary memory is termed as ‘destructive write’ memory but ‘non-destructive read’ memory? 2
4. Convert: (i) \( A2_{16} \) to decimal 2
   (ii) \( 47_{8} \) to binary
5. Expand and explain RISC computers. 2
6. What is a port? Name two wired ports and two wireless ports. 2
7. What is the role of indentation in a program? 1
8. What is a prologue? 1
9. What is the difference between testing and debugging? 2
10. Define: (i) Echo printing 2
    (ii) Robustness
11. Write any four uses of documentation. 2
12. What are the different stages of program development process? 2
13. Explain compile-time errors with example. 2
14. What is meant by token? 1
15. What are header files? 1
16. Classify the following identifiers of C++ into valid and invalid category. 2
   (i) 1num  (ii) num+1  (iii) num   (iv) num1num
17. Convert the following equations to C++ statements.
   (i)  \( s = 1 + \frac{1}{x} + \frac{1}{x^2} + \frac{1}{x^3} \)   
   (ii) \( a = \pi r^2 \)

18. What is meant by type casting? Give an example.

19. Write the output of the following code fragment:
    ```cpp
    int a=5, b=7;
    a+2 <= b? cout<<a++ : cout<<b--;
    ```

20. What is the result of the following expression?
    \(!((a<b) && (b==c) || (c>=a)) \) if a=5, b=7 and c=5

21. Rewrite the following program after correcting the errors.
    Underline each correction.
    ```cpp
    #include<iostream.h>
    void main( )
    {
      int a=10;
      do;
      a=-2;
      cout<"a;"
    }while a>=2
    ```

22. Rewrite the following code using switch statement.
    ```cpp
    char code;
    cin>>code;
    if(code=='R')
      cout<"Rs. 4";
    else if(code=='W' || code=='G')
      cout<"Rs. 10";
    else cout<"Rs. 12";
    ```

23. Name the header file(s) needed for the execution of the following C++ code.
    ```cpp
    void main( )
    {
      char name[40];
      strcpy(name,"India");
      puts(name); }
    ```

24. Write the output for the following statements:
    (i) \( x = \sqrt{49} \);
    (ii) \( y = \text{strlen}(\text{"Save Earth"}) \);
    (iii) \( z = \text{tolower}(\text{"Happy HOLI"}) \);
    (iv) \( w = \text{abs}(-5) \);
25. Differentiate between actual parameter and formal parameter. Give an example in C++ to illustrate both type of parameters.

26. How many bytes are required by the following array for its storage?
   float A[6][7];

27. Find the output of the following program:
   ```c++
   #include<iostream.h>
   #include<cctype.h>
   void main( )
   {
   char Text[ ] = “Aim High!”;
   for(int l=0; Text[l]!=\0’;l++)
   { if(isalpha(Text[l]))
   Text[l]=’*’;
   else if(isupper(Text[l]))
   Text[l]=Text[l]+1;
   else
   Text[l] = Text[l+1]; }
   cout<<Text; }
   ```

28. For the following C++ program, select the possible output(s) from the options (i) to (iv) given below:
   ```c++
   #include<cstdlib.h>
   #include<iostream.h>
   void main()
   { randomize();
   char P[ ]=”EXCELLENT”;
   for(int l=0; P[l] != ‘L’; l++)
   { int L=random(2)+1;
   cout<<P[L]<<“-“;
   }
   }
   ```
   (i) E-C-C-L- (ii) X-E-E-N- (iii) X-X-E-E- (iv) L-T-L-T-

29. Find the output of the following programs:
   ```c++
   #include<iostream.h>
   void result(int &x, int y=10)
   {
   int temp = x + y;
   x += temp;
   if(y <=10)
   y += temp; }
   ```
void main( )
{
    int A1=10, B2=5;
    result(A1, B2);
    cout<<A1<<'\t'<<B2<<endl;
    result(A1);
    cout<<A1<<'\t'<<B2<<endl;
}

30. Find the output of the following program:
#include<iostream.h>
struct number
{
    int no1, no2;  
};
void display(number n)
{
    cout<<"Number1="<<n.no1++<<"Number2="<<n.no2<<endl;  
}
void main( )
{
    number n1={10,100}, n2, n3;
    n3 = n1;
    n1.no1 += 5;
    n2 = n3;
    n2.no1 -= 5;
    n2.no2 *= 2;
    n3.no1 += 1;
    display(n1);
    display(n2);
    display(n3);  
}

31. Write a program to check whether a number is prime or not.

32. Write a program using nested loops to produce the following pattern.
    A
    A   B
    A   B   C
    A   B   C   D

33. Write a program to count the number of vowels in a string.

34. Write a complete program that reads an integer array having 10 elements.
    The program uses a function reverse( ) to reverse the array.

35. Write a program to find the sum of elements along the left diagonal and right diagonal of a matrix.