SET A

1. Give two major innovations of first generation computers.  

2. Expand: i) UNIVAC  ii) EDVAC

3. Define system software. Give two examples of system software.

4. Explain time sharing and distributed operating system.

5. What is the difference between shareware and proprietary software?

6. What are utilities? Mention any two utilities available in the system.

7. Explain processor management and file management function of an operating system.

8. Define the following:-
   i) Demand paging
   ii) Throughput
   iii) Compiler.

9. What are literals in C++?

10. What is the purpose of default clause in a switch statement.

11. What are data type modifiers? Name the four data type modifiers available in C++.

12. Which of the following can be used for naming a variable?
    Stud#name, S_Name, while, 123emp, ELSE

13. Write C++ expressions for the following:
    i) \( x = \frac{-b + \sqrt{b^2 - 4ac}}{2a} \)
    ii) \( V = \frac{4}{3} \pi r^3 \)

14. Given the following code fragment:
    ```cpp
    int ch = 5;
    cout << "ch\n" << ++ch << "\n";
    ```
    (i) What output does the above code fragment produce?
    (ii) What is the effect of replacing ++ch with ch+1?
15. What is the order of evaluation of the following C++ expression?
   i) \( a < b + 10 \) || \( c > d \) \&\& \( d < a \)
   ii) \( q + r + p \) \&\& \( x * y + z \) \% \( p \)

16. Evaluate the following, where \( p \), \( q \) are integers and \( r \), \( f \) are floating point numbers. The value of \( p=8 \), \( q=4 \) and \( r=2.5 \)
   (i) \( f = p * q + p/q \)
   (ii) \( r = p + q + p \) \% \( q \)

17. Differentiate between logical OR and logical AND operator.

18. Convert the following as directed:
   i) **for loop to while loop:**
      for(int i=2, sum=0; i<=20; i=i+2)
      sum+=i;

   ii) **if-else to switch:**
      int x,y,z;
      cin>>x>>y>>z;
      if (x==1)
      cout<<x*y+5;
      else if (x==2)
      cout<<x+2+y;
      else if (x==3)
      {
      z=(x*y*5)/2;
      cout<<z;
      }
      else cout<<"\'<<y<<"\'<<z;

19. i) What is the difference between while and do-while loop?
   ii) What do you mean by type casting?

20. Rewrite the following C++ program after removing all the syntax error(s), if any:

   i) #include<iostream.h>
      void main()
      {
      const MAX=0;
      int a, b;
      cin<<a>>b;
      if a>b
      MAX=a;
      getche();
      }
21. Give the output of the following code:-

i) #include<iostream.h>
   void main()
   {
   int i = 0, x = 0;
   do 
   { 
      if(i%5==0)
       { 
          cout<<x;
          x++;
       }
       ++i;
    }while(i<10);
    cout<<"\n"<<x;
   }

ii) for(i=0; i<10;++i)
   {
      for(j=2; j<i; ++j)
       { 
          if(i%j==0)
          break;
       }
      if(i==j)
      cout<<i<<"\n";
   }

22. How many times will the following loop execute?

   int s=0, i=0;
   do 
   { 
       s+=i;
       i++; 
   } while(i<5);
23. What will be the output of the following program segment?
   If input is: (a) g (b) e (c) b (d) p

   cin>>ch;
   switch(ch)
   {
     case 'g': cout<<"Good";
     case 'b': cout<<"Bad";
       break;
     case 'e': cout<<"Excellent";
       break;
     default: cout<<"Wrong Choice";
   }

24. Write a program find the sum of even digits of a given number.
    (eg. If the number is 1234 then output should be 6 (i.e. 2+4))

25. Write a program to calculate and print roots of a quadratic equation $ax^2+bx+c=0$ (a!=0).

26. Write a program to check whether a given number is positive or negative. If positive, check whether it is divisible by 3 and if negative check whether it is divisible by 7.

27. Write a program to find the smallest of three numbers using conditional operator.

28. Write a program to calculate area of circle, rectangle or a triangle depending upon user's choice.

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

30. Write a program to print the following pattern

   6  8  10
   12 14
   16

*******************************************************************************