INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION FEBRUARY 2018
CLASS XI
Marking Scheme – Computer Science [THEORY]

1 a. Byte , Kilo Byte, Giga Byte, Zeta byte 1

1 m for correct order. If partly correct give ½ m.

b. Any one valid difference. 1

½ m each

c. (i) Operating System Operating system is an interface between hardware and user which is responsible for the management and coordination of activities and the sharing of the resources of a computer. 1x2

(ii) Application software An application is any program, or group of programs, that is designed for the end user. Applications software (also called end-user programs) includes such things as database programs, word processors, Web browsers and spreadsheets.

1 m each for the correct answer

d. $(215.63)_8 = (010001101.110011)_2$ 1x2

(i) $(E7.8D)_{16} = (231.550)_{10}$

1 m each for correct answer

e. (i) Hybrid computers A combination of computers those are capable of inputting and outputting in both digital and analog signals. A hybrid computer system setup offers a cost effective method of performing complex simulations. The instruments used in medical science lies in this category. 2x2

(ii) Explain the functional components of a Computer with a neat block diagram.
Neat block diagram explaining the components.

2 m each for the correct answer

2 a. (i)Robustness is the ability of the program to bounce back an error and to continue operating within its environment 1x2

(ii)Pretty printing Formatting the program to make it more readable.

1 m each for the correct explanation.

b. (i)Adaptive maintenance To accommodate changing needs , time to time , maintenance is done and is called adaptive maintenance. For example new government may need to process new reports or market conditions. 2x2

(ii)Explain any four characteristics of a good program

Effective and efficient, User friendly, Self documenting code, Reliable, Portable, Robust

(Any 4 characteristics)

2 m each for the correct answer

c. Step 1: Start 3

Step 2: Take marks and store it in mark

Step 3: Check mark value, if mark > 32 then go to step 4 else step 5

Step 4: Print "PASS" and go to step 6

Step 5: Print "FAIL"

Step 6: Stop

½ m each for the correct steps.

d. **3 marks for flow chart with correct symbols.** 3

3 a. (i) When input or output (>>or <<) are used more than one time in a single statement then it is called as cascading of operators. e.g cout<< roll<< age<< endl; 1x3

(ii) It is an error in a program's source code that results in incorrect or unexpected result during runtime. Any valid example.

(iii)What is the meaning of type casting.

Type casting operators allow you to convert a data item of a given type to another data type according to the requirement. It is explicit conversion by the programmer.

1 m each for correct answer.

b. Comments are the pieces of code that compiler ignores to compile. There are two types of comments in C++. 2

Single line comment: The comments that begin with// are single line comments.

eg // print sum

Multiline Comment : The multiline comment begin with /* and end with */ .

/* print

Sum */

2 m for the correct answer.

c. int size 2 bytes and range -32768 to 32767 2

char size 1 byte and range -128 t0 127

1 m each for the correct answer

d. These are the data types that are composed of fundamental data types. e.g., array, class, structure etc. 2

1 m each for definition and 1 m for correct example

e. **1 m for declaration, input & output statements** 2

1 m for conditional operator statement.

f. (i)Evaluate the expression (++c + a>b) || (c%2+5>a/5) where a=1, b=2, c=3 3

1 (true)

(ii)Give the output

```
int ch=5;
cout << ++ch<< "\t"<<ch+1<<"\n";
```

6 6

(iii)Construct logical expression to represent: Either marks are more than 80 or grade is 'A'.

marks>80 ||grade=='A'

1 m each for the correct answer

4. a.

```
#include<iostream.h>
void main()
{  int num=12, a=1 ,b ,c ,d ;
while ( a<num )
{ b = num % a;
```

2

```
if (b==0)
cout<<a<<endl;
a++;
}
cout<<"Press any key to continue";
}
```

1 m for correct initialization & updation 1 m for correct while statement

b. 2

```
void main()
{  int i=5,x[5] = [1,2,4,5,6];        {1,2,4,5,6};
int const j=10;                       const int  j=10;
 ++i;
 j+=i;                                j+=i; j being a constant cannot modify
cout<<x[i];                           i is at position 6 and will print junk value
}
```

½ m each for error

c. 3

```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
4 3 2 1
3 2 1
2 1
 1
```

Header file, declarations 1 mark

Correct nested loop & output statement with endl at correct place 2 m

d. 3

```
 Void main()
{
int A[]={10,12,15,17,20,30};
for(int i = 0; i<6; i++)
{
if(A[i]%2==0)
A[i] /= 2;
else if(A[i]%3==0)
A[i] /= 3;
if(A[i]%5==0)
A[i] /=5;
}
for(i = 0; i<6; i++)
```

```
cout<<A[i]<<"#";
}
```

1#6#1#17#2#3#

½ m each for the correct output

e. Example: 3

If an array contains: –2, 4, –1, 6, –7, 9, –23, 10

The function should rearrange the array as: 2, 4, 1, 6, 7, 9, 23, 10

Header file, declarations, input statement 1 m

Correct logic for checking & changing value and displaying 2 m

5 a. 1

```
void main()
{ char Txt[] = "Welcome";
 for(int C= 0;C<strlen(Txt);++C)
cout<<Txt[C] ;
cout<<endl;
}
```

iostream.h and string.h

½ m for correct header file

b. 1

```
void main( )
{   randomize( );
int PICKER,H=5;
PICKER=random(H)+30;
for(int i=35;i>PICKER;i--)
cout<<i<<'$';
}
```

(i) 35$34$33$32$31$30$ (ii) 35$34$33$32$31$

(iii) 30$31$32$33$34$35$36$ (iv) 35$34$33$32$31$30$

Possible output is Option (ii) & justification ½ m each

c. **½ m for declaration & input statement** 2

1 ½ m for checking & displaying correct output

d. **Header file, declarations, input statement 2 m** 4

Correct logic for checking and displaying 2 m

6 a. 2

```
int a=30;
void print(int &x,int z,int y=10)
{ int temp=z+y;
        x+=temp;
        if(y==10)
        cout<<x<<temp<< "\n";   }
void main( )
{ int a=15, b=40;
print(::a,a);
```

```
cout<<a<<::a;
print(b,::a,a);
cout<< "\t"<<a<<b;
 }
```

5525

1555 15110

1 m for each line correct output

b. Example: 3

1 2 4
4 5 6
7 8 9
Major Diagonal : 1+5+9 = 15
Minor Diagonal : 4+5+7 = 16

Header file, declarations, input statement 1 m

Correct logic for displaying the diagonal elements with their sum 2 m

c. **Function header with correct arguments 1 m** 4

Correct logic for converting to upper case and checking for vowels & return statement 2 m

(i) Define a macro with an example.

Macro is a one line function statement used to replace a token sequence. It is always declared with #define statement.

Eg #define area(l,b) l*b

1 m for the correct definition with example

d. **Header file, declarations, input statement, calling function 2 m** 4

Correct logic for checking and displaying the result 2 m