INDIAN SCHOOL MUSCAT

HALF YEARLY EXAMINATION

SEPTEMBER 2019

SET B

CLASS XII

Marking Scheme – COMPUTER SCIENCE[THEORY]

Q.NO.	Answers	Marks (with split up)
1(a)	(i) string.h (ii) (ii) stdio.h (½ Mark for mentioning each correct header filename)	1

(b)	#define <u>PI 3.14</u>//Error 1
	void main( )
	{ float R=4.5,H=1.5;
	<u>float</u> A=2*PI*R*H + 2*<u>PI*pow(R,2);</u> //Error 2, 3 cout<<"<u>Area=</u>"<<A<<endl; //Error 4 }
	(½ Mark for each correction)
		2

(c)	For,INT,NeW,name1 (½ Mark for each correct identifier)	2
(d)	(i) and (iv) (1 Mark, working should be shown) AMin = 10 (½ Mark) AMax = 13 (½ Mark)	2
(e)	6*16 5*7 3*5 (½ Mark for each correct value) (½ Mark for all correct endl and *)	3
(f)	12* 16*22*27* 30*90 (½ Mark for writing each correct value)	3
2(a)	An object is an identifiable entity with some characteristics and behavior. It represents an entity that can store data and its associated functions. (1 Mark) A class is a group of objects that share common properties and relationships. It represents a group of similar objects. (1 Mark)	2
(b)	Encapsulation: combining of data and the functions associated with that data in a single	2

	unit. (1 Mark) Abstraction: providing only essential information to the outside world and hiding their background details. (1 Mark)	
3(a)	correct comparison between default arguments and function overloading (1 Mark each)	2

(b)	(i) Execute(56); //function 4
	(ii) Execute ('p',77.2F); //function 2
	(iii)Execute (83,77.33f); //function 3
	(iv)Execute (4,66,'x'); //function 1
	    (½ Mark)
		2

4(a)	private visibility mode: (1 Mark) Members of a class declared under this visibility are accessible only inside the class (in member functions of the class). They can not be accessed outside the class. public visibility mode: (1 Mark) Members of a class declared under this visibility are accessible inside the class (in member functions of the class) as well as by the Objects of that class (in any non member function of the program, prototyped / defined after the class declaration).	2

(b)	class ENVIRONMENT
	{ char City[20];
	 int PMLevel;
	char Health[15];
	 void AssignHealth();
	 public :
	 void In();
	 void Out();
	};
	void ENVIRONMENT::AssignHealth()
	 { if (PMLevel<=50)
	    strcpy(Health,"Healthy");
	 else if (PMLevel<=100)
	  strcpy (Health,"Moderate");
	else strcpy(Health,"Unhealthy");
	}
	void ENVIRONMENT::In() { gets(City); cin>>PMLevel; AssignHealth(); }
	void ENVIRONMENT::Out()
	{ cout<<City<<PMLevel<<Health<<endl; }
	
	(½ Mark for declaring class header correctly)
	 (½ Mark for declaring data members correctly)
	 (1 Mark for defining AssignHealth() correctly)
	 (½ Mark for taking inputs of City and PMLevel in In())
	 (½ Mark for invoking AssignHealth() inside In())
	 (½ Mark for defining Out() correctly)
		4

	(½ Mark for correctly closing class declaration with a semicolon ;)	

5(a)	(i) CAR B("TOYOTA",500000.00) ; // any valid values
	
	(ii) CAR(CAR &temp)
	    { strcpy (company, temp.company) ;
	      price = temp.price ;
	    }
	(1 Mark each for the correct answer)
		2

(a)	OR Correct explanation – (1 Mark) Any example- (1 Mark)	
(b)	<table><tr><td>Constructor</td><td>Destructor</td></tr><tr><td>Name of the constructor function is same as that of class</td><td>Name of the destructor function is same as that of class preceded by ~</td></tr><tr><td>Constructor functions are called automatically at the time of creation of the object</td><td>Destructor functions are called automatically when the scope of the object gets over</td></tr><tr><td>Constructor can be overloaded</td><td>Destructor cannot be overloaded</td></tr><tr><td>Constructor is used to initialize the data members of the class</td><td>Destructor is used to de- initialize the data members of the class</td></tr></table> Correct differences (Any 2)- (1 Mark each)	2
6(a)	In multiple inheritance a class is derived from two or more base classes. Eg: Base class A Base class B Derived class C Hierarchical inheritance- when many subclasses inherit from a single base class. Eg: Base class C Derived class A Derived class B (1 Mark each for the correct answer)	2
(b)	(i)None of data members are accessible from objects belonging to class AUTHOR. (1 Mark) (ii) Enter(), Show() (1 Mark) (iii) Data members: Voucher_No, Sales_Date, Salary (½ Mark)	4

	Member function:Sales_Entry(),Sales_Detail(),Enter(),Show(),Register(), Status() (½ Mark) (iv) 66 bytes (1 Mark)	

7(a)	void DispDorM()
	{
	if stream File("DELHI.TXT");
	char Str[80];
	while(File.getline(Str,80))
	{
	if(Str[0]='D' || Str[0]='M')
	cout«Str«endl;
	}
	File.close(); //Ignore
	}
	(½ Mark for opening DELHI. TXT correctly)
	(1 Mark for reading each Line (Whichever method adopted) from the file)
	(1 Mark for checking lines starting with 'D' or 'M')
	(½ Mark for displaying the lines)
		3

(b)	void Read_File( )
	 { BUS B;
	 ifstream Fin;
	   Fin.open("Bus.Dat", ios::binary);
	     while(Fin.read((char *) &B, sizeof(B)))
	     { if(strcmp(B.EndTo(), "Mumbai")==0)
	     { B.show( ) ; }
	     } Fin.close( ); }
	(1 Mark for opening Bus.dat correctly)
	 (1 Mark for reading all records from the file)
	(1 Mark for checking destination is Mumbai)
	 (1 Mark for displaying the desired items and closing the file)
		4

	OR
	void Economic()
	{ GIFTS I;
	  ifstream fin("GIFTS.DAT",ios::binary);
	  while (fin.read((char *)&I,sizeof(I)))
	 { if(I.GetCost()>2000)
	    I.See();
	}
	 fin.close(); }
	 (1 Mark for opening GIFTS.DAT correctly)
	 (1 Mark for reading all records from the file)
	(1 Mark for checking value of Cost > 2000)	

	(1 Mark for displaying the desired items and closing the file)	
(c)	(i) File.seekg(-1 * sizeof(I) ,ios: :cur)); (1 Mark) (ii) File.write((char*)&I,sizeof(I)); (1 Mark)	2
(c)	OR seekg(): This function takes the file get pointer to the specified byte in a file. Eg: f.seekg(30); // It takes a pointer to 30th byte. (1 Mark) tellg(): This function returns the position of the current get pointer in terms of bytes in a file. int n = f.tellg(); (1 Mark)	
8(a)	(½ Mark for function header) (1 Marks for the correct Logic) (½ Mark for correct return statement)	2
(b)	(½ Mark for function header) (2½ Marks for the correct Logic)	3
(c)	(½ Mark for function header) (1 Mark for correct loop) (1½ Marks for the correct Logic for sorting)	3

(d)	void SWAPCOL(int A[][100], int M, int N)
	{
	int Temp, I;
	for(I=0; I<M; I++)
	{
	Temp = A [I][0] ;
	A[I][0] = A[I][N-l];
	A[I][N-l] = Temp;
	}}
	(1 Mark for correct loop)
	(2 Mark for swapping the first column with last column correctly)
		3

	OR void DISPMID(int A[][5],int R,int C) { for (int J=0;J<C;J++) cout<<A[R/2][J]<< " "; cout<<endl; for (int I=0;I<R;I++) cout<<A[I][C/2]<< " "; } 1 Mark for correct loop) (2 Marks for the correct Logic to display middle row and middle column)	
(e)	OPTION 1: Loc(P[I][J]) along the row =BaseAddress+W [(I–LBR)*C+(J–LBC)] (where C is the number of columns, LBR=LBC=0) LOC(P[5][5]) = BaseAddress + W*[I*C + J] 15000 = BaseAddress + 4*[5*50 + 5]	3

	= BaseAddress + 4*[250 + 5] = BaseAddress + 4*255 = BaseAddress + 1020 BaseAddress = 15000-1020 = **13980** LOC(P[10][30])= 13980 + 4*[10*50+30] = 13980 + 4*530 = 13980 + 2120 = **16100** 1 Mark for writing correct formula OR substituting formula with correct values) (1 Mark for correct step calculations) (1 Mark for final correct address)	
(e)	OR OPTION 2: ASSUMING LBR=LBC=0 W=2 BYTES, NUMBER OF ROWS(M)=10, NUMBER OF COLUMNS(N)=30 LOC(S[I][J]) = B +(I + J*M)*W LOC(S[2][15]) = B +(2+15*10)* 2 8200 = B + (152*2) B = 8200 - 304 **B = 7896** LOC(S[5][10]) = 7896 +(5+10*10)* 2 = 7896 + (105*2) = 7896 + 210 = **8106** 1 Mark for writing correct formula OR substituting formula with correct values) (1 Mark for correct step calculations) (1 Mark for final correct address)	
9(a)	(½ Mark for checking function header) (2½ Mark for logic to add a book information in stack)	3
(b)	(½ Mark for checking function header) (2½ Mark for logic to add a member in the Queue)	3
	OR (½ Mark for checking function header) (2½ Mark for logic deleting the product from the Queue)	
(c)	Answer = 50 (1 Marks for correct steps showing stack status) (1 Mark for correct output)	2
(d)	UV*WZ-X/+ (1 Mark for correctly converting till each operator) (1 Mark to be given for writing correct answer)	2