**SAMPLE PAPER-2013
CLASS-XII
SUBJECT- COMPUTER SCIENCE**

**TIME : 3 HR MAX MARK : 70**

*General Instructions :*

* *This question paper consists of* ***8*** *pages*
* *This question paper is divided into* ***Seven*** *sections.*
* *Answer the questions after carefully reading the text.*

**This paper consist of *8* pages**

**I**

 a) Define inline function. Suggest some situation where functions cannot be inline. Also mention its importance with respect to class. 2

 b) Give header files for the following statements, by specifying the functions used in each header file. 2

 void main()

 { clrscr( );

int min = INT\_MIN;

 cout<< “Additive inverse is” <<abs(min);

 }

1. Rewrite the following after making corrections in the following code, if any. Also underline the corrections made. 2

include<iostream.h>
typedeaf char[40] string;
void main( )
{  string S=”Australia”;
 L=strlength(S);
 cout<<”String “<<S<<’ has ’<<L<<”Characters”<<endl;

}

1. Give output for the following, assuming no syntax error in the given code

 i) void main()

 { int x[] = { 50, 40, 30, 20, 10 }; 2

 int \*p, \*\*q, \*t;

 p=x;

 t=x+1;

 q=&t;

 cout<<\*t<< “\t”<< \*p << “\t” << \*\*q << “\t” << ++\*t++;

}

 ii) #define i 5
class TEMP
{ static int a;
 int b;
public:
 TEMP( )
 { b=10; }
 void INTEMP( )
 { a++;
 b=a+10; }
 void OUTTEMP( )
 { cout<<a\*i<<"$"<<b-3<<endl; } 3

};
int TEMP::a=2;

void main()
{ TEMP ob[5];
 for(int x = 1;x<5; x++)
 ob[x].INTEMP( );
 for(x = 0;x<5;x+=2)
 ob[x].OUTTEMP( );

}

 iii)

 void Withdef(int HisNum=29) 2

 { if(HisNum!=29)

 for(int I=12;I<=HisNum;I+=7)

 cout<<I<<" ";

 cout<<"$";

 }

 void Control(int &MyNum)

 { MyNum+=8;

 Withdef(MyNum);

 }

 void main( )

 { int YourNum=16;

 Control(YourNum);

 Withdef( );

 cout<<YourNum;

 }

1. Using the following C++ code, find out the ***correct possible output(s)*** from the suggested output options given below. Also write the ***highest value*** which can be assigned to variable G :                         1

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

1. 35$34$33$32$31$30$ 30
2. 35$34$33$32$31
3. 30$31$32$33$34$35$36
4. 35$34$33$32$31$30

**II**

* 1. ABC School is organizing sports for its students every year. There are different category as per the age of the student as given below. Number of events that a particular student can take part also depends on category. Event\_names and the corresponding position are stored and Total\_Points scored by the participant is got by adding the points corresponding to their position in different events . Define a class **Paricipant** in C++ with the following descriptions:

 Private Members:

 Part\_Name String storing the participant name 4

Event\_names array storing name of the events he/she is taking part

 Category string storing the category

Age integer storing the participant age

N\_O\_Events integer storing number of events according to age

 Position array storing position hold by participant for each event

 T\_Points integer storing the total points scored by participant

* Assign\_Points () to assign the *T\_Points* scored by participant as sum of points based on position hold by them as given below.

 Protected Members :

* Event details( ) to assign *category* and *N\_O\_Events* based on *age*.

Also input the name of different events to *Event\_names* he/she is participating and the corresponding postion( 1 for first, 2 for second, 3 for third and so on)and invoke *Assign\_Points( )*

 Public Members:

* Get\_Data () to input *Part\_Name*, *Age* and to invoke *Event\_details( )*
* Show\_Data() to display *Part\_name, Category* and *T\_Points.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Position** | **Points** |  | **Age**  | **Category** | **N\_O\_Events** |
| 1 | 5 |  | <9 | Mini | 4 |
| 2 | 3 |  | >=9 and<=12 | subJunior | 5 |
| 3 | 1 |  | >12and<=14 | Junior | 6 |
| 4 onwards | 0 |  | >14 and <=16 |  Inter | 7 |

 b) class Hospital

 { long patients\_no;

 char Pat\_name[35];

 float charge;

 publc:

 void Enquiry() {cout<<patient\_no<<”:” <<Pat\_name<<” : ” <<charge<<endl; }

 };

 void main()

 { Hospital Hosp; //statement 1

 Hosp.Enquiry();

 } 2

1. Define a member function in class Hospitalwhich is invoked at the execution of *statement 1.*

 Also Specify the access level in which the function definition should occur. Justify?

c) class Teacher

 { int TNo;

 protected:

 char Tname[20], Dept[10];

 public:

 void Teach\_Rdata( );

 void Teach\_Sdata( );

 };

 class Student

 { int Admno

 char Sname[20], Stream[10];

protected:

 void Calculate( int);

public:

 void Stud\_Rdata( );

 void Stud\_Sdata( );

 };

 class School : public Student, Teacher

 { char SCode[10];

 int \*telno;

public:

 void School\_Rdata( );

 void School\_Sdata( );

 } 4

1. Mention the order of constructor invocation when declaring an object of **School**
2. Name the data members which can be accessed by the functions of **School.**
3. Name the type of inheritance depicted in above class.
4. How many bytes will be occupied by **School**?

 **III**

1. An array Arr[25][10] is stored in the memory in row major order. If the address of Arr[10[5] is 1405 and Arr[5][3] is 625. Find the location of Arr[7][7] 2

 b) Write a function in C++ which accepts an integer array and its size as arguments and assign the elements into a 2D array of integers in the following format. (Size of the integer array must be odd) 3

 If the array is 1 2 3 4 5 . The output is If the array is 10 15 20. The output is

1 0 0 0 5 10 0 20

0 2 0 4 0 0 15 0

0 0 3 0 0 10 0 20

0 2 0 4 0

1 0 0 0 5

 c) Struct Student

{ int RollNo;

char Name[25];

float Marks;

}; 3

 Write a function ***SORT\_ID( )*** in C++ to sort and dispaly student in descending order of their mark using insertion sortwhere the array of structure and size are passed as arguments.

 d) Evaluate the following postfix expression using stack and show the contents after execution of each operations 2

 -500, 15,7,0,-,10,2,0,+,/,\*,+,/

 e) Write the definition of the function *Insert()* and *Display(),* to insert a new information about a book and to display the information of the books written by Jane Austen in a dynamically allocated queue as given below

 struct bnode

 { char Aname[30]; //Author Name

 char Bname[45]; // Book Name

 float Price;

 bnode \*link ;

 };

 class LIBRARY

 { bnode \* REAR,\*FRONT; 4

 public :

 LIBRARY() { REAR= FRONT=NULL;}

 void Insert (); // to add new information to library

 void display() ; // to display the information of books by Jane Austen

 ~LIBRARY(){ cout<<” Book not available “};

 };

**IV**

 a) Write a function in C++ to count the number of lines starting with article ***The*** from a text file STORY.TXT. 3

For example, if the content of the file STORY.TXT is

There was a monkey in **the** zoo. **The** monkey was very naughty.

Then the output of the program should be 1.

 b) Given a binary file **Resume.dat** containing records of all the following class

 class Candidate

 { char C\_name[20], Post\_apply[20]; 3

 int Expr, Sal\_Exp ;

 public :

 void Apply()

 { gets(C\_name); gets(Post\_apply);

 cin>>Expr>>Sal\_Exp;

 }

 char \* Post()

 { return Post\_apply; }

 int Sal\_Expected()

 { return Sal\_Exp; }

 void ShowDet()

 { cout<<C\_name<<” “<<Post\_apply<<” ”<<Expr<<” “<<Sal\_Exp<<endl;

 };

 Write a function in C++ that would read the content of *Resume.dat* and display the records of all those candidate who have applied for “Sales Manager “ with an expected salary between Rs35000 and Rs 50000.

V.

a) What do you understand by Selection and Projections in relational algebra ? 2

 b) Consider the following tables PERSONNEL and DESIG storing employees details. Write SQL commands for the statements (i) to (v) and give outputs for SQL queries (vi) to (viii) 6

 PERSONNEL

|  |  |  |  |
| --- | --- | --- | --- |
| P\_ID | FIRSTNAME | LASTNAME | CITY |
| 102 | SAM | TONES | PARIS |
| 105 | SARAH | ACKERMAN | NEW YORK |
| 144 | MANILA | SENGUPTA | NEW DELHI |
| 210 | GEORGE | SMITH | HOWARD |
| 255 | MARY | JONES | HUSTON |
| 300 | ROBERT | SAMUEL | WASHINGTON |
| 335 | HENRY | WILLIAMS | BOSTON |
| 400 | RONNY | LEE | NEW YORK |
| 451 | PAT | THOMPSON | PARIS |

 DESIG

|  |  |  |  |
| --- | --- | --- | --- |
| P\_ID | SALARY | BENEFITS | DESIGNATION |
| 102 | 75000 | 15000 | MANAGER |
| 105 | 85000 | 25000 | DIRECTOR |
| 144 | 70000 | 15000 | MANAGER |
| 210 | 75000 | 12500 | MANAGER |
| 255 | 50000 | 12000 | CLERK |
| 300 | 45000 | 10000 | CLERK |
| 335 | 40000 | 10000 | CLERK |
| 400 | 32000 | 7500 | SALESMAN |
| 451 | 28000 | 7500 | SALESMAN |

1. Display FirstName and City of Employee having salary between 50,000 and 90,000
2. Display details of Employees who are from “PARIS” city.
3. Increase the benefits of employee having P\_ID = 210 by 500.
4. Count number of employees whose lastname starts with letter ‘S’.
5. Delete the records of Clerks.
6. Select FirstName, salary\*6 “Annual Salary”from personnel P, Desig D

where designation = ‘MANAGER’ AND P.P\_ID=D.p\_ID;

1. Select COUNT (DISTINCT designation) from Desig;
2. Select designation, SUM(salary) from Desig

Group by designation having count (\*) > 2;

**VI.**

a) State absorption law and find the complement of it. 2

 b) Simplify the expression using Boolean laws

x’.y’.z’ + x’.y’.z + x’y.z + x’.y.z’ + x’.y’.z 1

c) Reduce the following Boolean Expression using K-Map 3

 F(A,B,C,D) = ∑ ( 0 , 2, 4, 5, 6, 7, 8, 10, 13, 15)

 Draw the logic circuit for the reduced expression using NAND gate

d) A provisional store announces a special discount on all its product as a festival offer only to those who satisfy any one of the following conditions:

 \* If he/she is an employee of the store and has a service of more than 10 years.

 \* If he/she is a regular customer of the store whose age is less than 65 years and

 is not an employee of the store.

 \* If he/she is a senior citizen but not a regular customer of the store.

 **The inputs are:**

**E** : Employee of the store

**R** : Regular customer of the store

**S** : Service of the employee is more than 10 years

**C** : Senior citizen of 65 years or above

 **Output:**

 **X**- Denotes eligible for discount [1 indicates YES and 0 indicates NO in all cases]

Draw the truth table for the inputs and outputs given above and write the SOP expression for X(E,R,S,C). 2

**VII.**

a) Expand the following terminologies : 1

i)GSM ii)CDMA iii)XML iv)URL

 b) What are Cookies? 1

 c) What is WEB2.0? 1

 d) Out of the following, identify client side script(s) and server side script(s)

(i) JavaScript (ii) ASP (iii) vbscript (iv) JSP 1

 e) Differentiate between freeware and shareware 2

 f) THE CSM organization has set up its new front office at Gangtok(Sikkim) for its web- based activities. It has 4 Wings of buildings as shown in the diagram :

WA

WC

WD

WB

Center to Center Distance

Nos. of Computer in each wing

|  |  |
| --- | --- |
| WA | 50 |
| WB | 130 |
| WC | 40 |
| WD | 15 |

|  |  |
| --- | --- |
| WA to WB | 40m |
| WA to WC | 150m |
| WA to WD | 200m |
| WB to WC | 165m |
| WB to WD | 80m |
| WC to WD | 20m |

 i) Suggest a most suitable cable layout of connection between the Wings. 1

 ii) Suggest the most suitable place to house the server of the organization, with suitable reason. 1

 iii) Suggest the placement of Repeater in above layout : 1

 iv) The organization is planning to link its head office situated in Delhi with its branch office at Gangtok. Suggest an economic way to connect it, the company is ready to compromise on the speed of connectivity. Justify your answer. 1

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**ABUDHABI INDIAN SCHOOL, ABUDHABI**

**Pre Board EXAMINATION I 2012-2013**

**SUB : COMPUTER SCIENCE TIME : 3 HR**

**SHIFT : GIRLS MAX MARK : 70**

**CLASS : XII**

 **Marking Scheme**

|  |  |  |
| --- | --- | --- |
| **Q.No** | **Answer** | **Marks** |
| **1** | a)definition, long having loopsb) void main() { clrscr( **); //conio.h**int min = INT\_MIN;// **limits.h** cout<< “Additive inverse is” <<abs(min**);//iostream.h,math.h** }c) **Ans.**      **#include**<iostream.h>            **#include<string.h>****typedef char string[40];** void main( ){  string S=”Australia”;**int/long** L=strlen(S);cout<<”String “<<S**<<” has”<<**L<<”Characters”<<endl; } d) i) **30$7** **30$11** **30$13**  ii) 30 50 30 41 iii)12 19 $$ 24 eii) & iv) will be the correct possible outputs. The highest value of variable G would be 34  | 1+1½ each½ each1 each211 |
| **II** | 1. Correct definition with logic
2. Public default constructor

 c)i)student,teacher,schoolii)scode,telno,tname,deptiii)multipleiv)76 | 1 each1+11111 |
| **III** | 1. -100
 | 2 |
| **IV** |  c) Proper function with logic d) Proper function with logic  | 11 |
| **V** | 1. Definition
2. 1-v correct query

VI,VII ½ markVIII- 1  | 1+221 |
| **VI** | 1. X=xxy =x
2. Xi
3. K- map
4. D= draw truth table
 | 1111 |
| **VII** | a)Bus or ringb) wbc)above >75d) micro wave |  |
|  |  |  |

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