

KENDRIYA VIDYALAYA SANGATHAN (CHANDIGARH REGION)

MARKING SCHEME (Ist Pre Board 2018-19)

1	Ans: (i) Relational (ii) Relational (iii)Logical (iv) Arithmetic (a) Marking: $\frac{1}{2}$ Marks for each correct	2
(b)	Ans: Following header files are essentially required for execution of above program iostream.h, ctype.h Marking: $\frac{1}{2}$ Marks for each correct header file.	1
(c)	Answer: #include<iostream.h> void main() <u>{int A[10] = {3,2,5,4,7,9,10};</u> int S = 0, p ; for(p = 0; p<=6; p++) { if(A[p]%2==0) S = S+A[p]; } cout<<S; } Marking: $\frac{1}{2}$ Marks for each correction	2
(d)	Output: 7@11@ 6@8@ 11@3@ Marking: – 1 Marks for each correct line output	3
(e)	Answer: BCE@XEMA0291 Marking: 2 Mark for each correct line of output. ($\frac{1}{2}$ Mark for each of three correct consecutive alphabets)	2
(f)	(i) Answer: (iv) 10\$\$\$125\$ is the correct option.. Minimum value of Go = 2 Maximum value of Go = 3 Marking: 1 Mark for correct output option $\frac{1}{2}$ mark each for Minimum and Maximum value	2

2.	<p>Ans: Following are the characteristics of a Constructor:</p> <p>(a)</p> <ol style="list-style-type: none"> 1. A Constructor has the same name as that of the class. 2. It is executed automatically whenever an object is created. 3. It has no return type even void. 4. A constructor has to be declared as a public member. 5. It can not be inherited. <p>Marking: <i>½ mark each for any correct characteristics.</i></p>	2
(b)	<p>Answer</p> <p>i). Constructor and Member Function, Constructor will be executed at the time of object creation and Member Function will be executed when it will be called using object.</p> <p>(ii). planet p("Pluto","7.5 Billion Km"); p.display("Pluto","7.5 Billion Km");</p> <p>Marking: ½ mark for each correct answer</p>	2
OR		
(b)	<p>Four important characteristics of Object Oriented Programming</p> <p>(i) Encapsulation (ii) Data Hiding (iii) Polymorphism (iv) Inheritance</p> <p>Example of Encapsulation</p> <pre>class student { int rno; char name[20]; public: void input() { cin>>rno; gets(name); } void output() { cout<<rno<<" "<<name<<endl; }};</pre>	

	1 mark for Charterstics and 1 mark for example	
(c)	<pre> class Ele_Bill { char Cname[20]; long Pnumber; int No_of_units; float Amount; void Calc_Amount(); public: void Accept(); void Display(); }; void Ele_Bill :: Calc_Amount() { if(No_of_units<=50) { Amount=0; } else if(No_of_units<=150) { Amount=(No_of_units-50)*0.80; } else if(No_of_units<=350) { Amount=80+(No_of_units-150)*1.00; } else { Amount=80+200+(No_of_units-350)*1.20; } } void Ele_Bill :: Accept() { gets(Cname); cin>Pnumber>>No_of_units; </pre>	4

	<pre>Calc_Amount(); } void Ele_Bill :: Display() { cout<<Cname<<Pnumber<<No_of_units<<Amount; } </pre> <p>Marking:</p> <p>(½ Mark for declaring class header correctly)</p> <p>(½ Mark for declaring data members correctly)</p> <p>(1 Mark for defining Calc_Amount() correctly)</p> <p>(½ Mark for taking inputs of Cname, Pnumber and No_of_units in Accept())</p> <p>(½ Mark for invoking Calc_Amount() inside Accept())</p> <p>(½ Mark for defining Display() correctly)</p> <p>(½ Mark for correctly closing class declaration with a semicolon ;)</p>	
(d)	<p>Answer</p> <p>(i) Multiple Inheritance</p> <p>(ii) Enter(), Out(), SiteEnter(),SiteOut(),Register()</p> <p>(iii) None of the data members will be accessible but following member functions can be accessed by object of class training Register(), Show(), Enter(), Out()</p> <p>(iv) The size of object of class Training will be 68 bytes.</p> <p>Marking: 1 Mark for each correct answer. No marks if partial answer is correct.</p>	4
OR		
(d)	<pre>class District : public State { public : char Dname[20]; float Distance; long int Population; void DINPUT() { gets(Dname); cin>>distance; } } </pre>	

	<pre>cin>>Population; } void DOUTPUT() { cout<<Dname<<endl; cout<<Distance<<endl; cout<<population<<endl; } };</pre> <p>Marking:</p> <p>(1 Mark for correct syntax for derived class header)</p> <p>(½ Mark for writing public :)</p> <p>(½ Mark for correct declaration of data members Dname ,Distance and Population)</p> <p>(1 Mark for defining the function DINPUT())</p> <p>(1 Mark for defining the function DOUTPUT())</p>	
3	<p>Answer:</p> <p>(a) void grace_score(int score[],int size)</p> <pre>{ for(int i=0;i<size;i++) { if(score[i]<40) score[i]=score[i]+5; cout<<score[i]<<" "; } }</pre> <p>Any other equivalent logic producing the correct result</p> <p>(½ Mark for correct function header)</p> <p>(½ Mark for correct loop)</p> <p>(½ Mark for correct checking of array elements for less than 40)</p> <p>(½ Mark each for Adding value 5 to the array elements which has value less than 40)</p>	2
	OR	
(a)	<pre>void AddEnd4(int A[10], int size) {</pre>	

	<pre>int I,X,SUM=0; for(I=0;I<size;I++) { X=A[I]%10; if(X%2 ==0) SUM=SUM+A[I]; } cout<<SUM; }</pre> <p>Marking:</p> <p>(½ Mark for correct loops)</p> <p>(½ Mark for correct checking values ending with even)</p> <p>(½ Mark for finding sum of values)</p> <p>(½ Mark for displaying the sum)</p>	
(b)	<p>Answer:</p> <p>Row-major Formula:- $A[I][J] = B + W * ((I - Lr) * Nc + (J - Lc))$</p> <p>$Nr = 50, Nc = 30, B = ?, W = 4, Lr = 0, Lc = 0, A(10, 15) = 21500$</p> <p>$A[10][15] = B + 4 * ((10 - 0) * 30 + (15 - 0))$</p> <p>$21500 = B + 4 * (300 + 15)$</p> <p>$21500 = B + 4 * 315$</p> <p>$B = 21500 - 1260$</p> <p>$B = 20240$</p> <p>$A[30][25] = 20240 + 4 * ((30 - 0) * 30 + (25 - 0))$</p> <p>$A[30][25] = 20240 + 4 * (900 + 25)$</p> <p>$A[30][25] = 20240 + 4 * 925$</p> <p>$A[30][25] = 23940$</p> <p>Marking</p> <p>1 Marks for Formula</p> <p>1 Marks for Correct calculation of Base Address</p> <p>1 Marks for Correct Calculation of Address of Arr[30][25]</p>	3
	OR	
	ASSUMING LBR=LBC=0	

	<p>W=2 BYTES, NUMBER OF ROWS(M)=10, NUMBER OF COLUMNS(N)=30</p> <p>$LOC(S[I][J]) = B + (I + J * M) * W$</p> <p>$LOC(S[2][15]) = B + (2 + 15 * 10) * 2$</p> <p>$8200 = B + (152 * 2)$</p> <p>$B = 8200 - 304$</p> <p>$B = 7896$</p> <p>$LOC(S[5][10]) = 7896 + (5 + 10 * 10) * 2$</p> <p>$= 7896 + (105 * 2)$</p> <p>$= 7896 + 210$</p> <p>$= 8106$</p> <p>Marking:</p> <p>1 Marks for Formula</p> <p>1 Marks for Correct calculation of Base Address</p> <p>1 Marks for Correct Calculation of Address of Arr[5][10]</p>	
(c)	<p>Answer:</p> <pre> struct Book { int BNo; char BName[20]; Book *Next; }*temp,*top; void pop() { temp=top; top=top->next; delete temp; } </pre> <p>Marking:</p> <p>(1 Mark for creating new node Book)</p> <p>(1 Mark for assigning top to temp)</p> <p>(1 Mark for top=top->next)</p> <p>(1 Mark for delete top)</p>	4
OR		

	<pre> struct stud { char Name[20]; stud *Link; } *front, *rear; void Insert(stud *np) { if (front == NULL) front = rear = np; else { rear->Link = np; rear = np; } } </pre> <p>Marking:</p> <p>1 Mark for function heading</p> <p>½ mark for checking front=null</p> <p>½ mark for front=rear=np</p> <p>1 mark for rear->Link = np;</p> <p>1 mark for rear = np;</p>	
(d)	<pre> 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]<< " "; } </pre> <p>(½ Mark for correct loop for displaying middle row elements)</p> <p>(1 Mark for correct statement to display middle row elements)</p> <p>(½ Mark for correct loop for displaying middle column elements)</p> <p>(1 Mark for correct statement to display middle column elements)</p>	3
OR		

	<pre> Void ALTERNATE(A[][3], int M, int N) { Int d=1; For(int i=0, i<N,i++) { For(int j=0, j<M,j++) { If(d==1) Cout<<A[i][j] D*=-1; } } } </pre> <p>Marking: (1 Mark for correct loop) (2 Mark for correct statement to display elements)</p>	
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(e)	<p>Answer: Postfix= XYZ+U/V*-</p> <p>Marking: (½ Mark for correctly converting till each operator)</p>	2
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OR

	<p>Element Scanned Stack Status</p> <table border="1" data-bbox="395 1294 999 1738"> <thead> <tr> <th>Element Scanned</th> <th>Stack Status</th> </tr> </thead> <tbody> <tr><td>45</td><td>45</td></tr> <tr><td>45</td><td>45, 45</td></tr> <tr><td>+</td><td>90</td></tr> <tr><td>32</td><td>90, 32</td></tr> <tr><td>20</td><td>90,32,20</td></tr> <tr><td>10</td><td>90,32,20,10</td></tr> <tr><td>/</td><td>90,32,2</td></tr> <tr><td>-</td><td>90,30</td></tr> <tr><td>*</td><td>2700</td></tr> </tbody> </table> <p>Hence the final result is 2700</p> <p>(½ Mark for evaluating till + operator) (½ Mark for evaluating till / operator) (½ Mark for evaluating till - operator) (½ Mark for evaluating till * operator)</p> <p>Note:</p>	Element Scanned	Stack Status	45	45	45	45, 45	+	90	32	90, 32	20	90,32,20	10	90,32,20,10	/	90,32,2	-	90,30	*	2700	
Element Scanned	Stack Status																					
45	45																					
45	45, 45																					
+	90																					
32	90, 32																					
20	90,32,20																					
10	90,32,20,10																					
/	90,32,2																					
-	90,30																					
*	2700																					

	(1 Mark to be given for writing correct answer as 2700 without showing the Stack Status)	
4(a)	<p>Answer:</p> <p>Client Number 8 of 200</p> <p>($\frac{1}{2}$ Mark for displaying correct value of File.tellg()/sizeof(C) + 1)</p> <p>($\frac{1}{2}$ Mark for displaying correct value of File.tellg()/sizeof(C))</p>	1
	OR	
	<p>seekg():- moves get pointer(input) to a specified location</p> <p>seekp():- moves put pointer (output) to a specified location</p> <p>Marking:</p> <p>($\frac{1}{2}$ Mark for each correct answer)</p>	
(b)	<p>Answer:</p> <pre>void readfile() { ifstream fin; fin.open("CITY.TXT"); char line[256]; while (!fin.eof()) { fin.getline(line,255); if (line[0] == 'P' line[0] == 'S') cout<< line; } fin.close(); }</pre> <p>Marking:</p> <p>($\frac{1}{2}$ mark for correct syntax of function header and opening the file in 'in' mode)</p> <p>($\frac{1}{2}$ mark for reading content from file)</p> <p>($\frac{1}{2}$ mark for correct condition for searching)</p> <p>($\frac{1}{2}$ mark for displaying the result)</p>	2
	OR	
	<pre>int countalpha() { ifstream Fin("BOOK.txt"); char ch;</pre>	

	<pre> int count=0; while(!Fin.eof()) { Fin.get(ch); if (islower(ch)) count++; } Fin.close(); return count; } </pre> <p>Marking: 2 Marks for correct code</p>	
(c)	<p>Answer:</p> <pre> void ONOFFER() { TOYS T; ifstream fin; fin.open("TOYS.DAT", ios::binary); while(fin.read((char*)&T, sizeof(T))) { if(strcmp(T.SeeOffer(),"ON OFFER")==0) T.View(); } fin.close(); //Ignore } </pre> <p>OR</p> <p>Any other correct function</p> <p>Marking: (1Mark for opening TOYS .DAT correctly) (½ Mark for reading records from TOYS.DAT) (½ Mark for comparing Remarks with ON OFFER (ignore case sensitive checking)) (1 Mark for displaying record)</p>	3
	OR	
	Void ChangeItem(int Id, float Pr)	

	<pre> { fstream File("ITEM.DAT", ios::in ios::out ios::binary); Item I; While(!File.eof()) { File.read((char*)&I, sizeof(I); If(I.Ret_Id()==Id) { I.SetPrice_Price(Pr); File.seekg(-sizeof(I), ios::cur); File.write((char*)&I, sizeof(I); } } File.close(); } </pre> <p>Marking:</p> <p>(½ Mark for opening ITEM.DAT correctly)</p> <p>(1 Mark for reading all records from the file)</p> <p>(1 Mark for comparing value of Id from file & calling Set_Price() function)</p> <p>(½ Mark for writing new value of price in file)</p>	
5(a)	<p>Ans: Primary Key: DCODE</p> <p>Degree=4, Cardinality=6</p> <p><i>1 Mark for correct answer</i></p> <p><i>½ Mark for each correct answer</i></p>	2
(b)	<p>Write SQL Commands for the following statement</p> <ul style="list-style-type: none"> • SELECT Teachername, periods from school where periods<25; • SELECT Teachername, code, Designation from school, admin where school.code=admin.code; • SELECT count(*),subject from teachers Group by Subject; • SELECT code,Teachernmae,subject from teachers where DOJ>'01/01/1999'; <p><i>1 Mark for each correct answer</i></p> <p><i>Ignore if ; is not used as terminator</i></p>	4
(c)	<p>Give the output of following SQL queries:</p>	2

i) SELECT MAX(EXP), SUBJECT FROM SCHOOL GROUP BY SUBJECT;

MAX(EXP)	SUBJECT
10	ENGLISH
16	PHYSICS
15	MATHS
5	CHEMISTRY

ii) SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION = 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE ;

TEACHERNAME	GENDER
PRIYA RAI	FEMALE
LISA ANAND	FEMALE

iii) SELECT DESIGNATION, COUNT(*) FROM ADMIN GROUP BY DESIGNATION HAVING COUNT(*) <3;

DESIGNATION	COUNT(*)
VICE PRINCIPAL	1
COORDINATOR	2
HOD	2
SENIOR TEACHER	2

iv) SELECT COUNT(DISTINCT SUBJECT) FROM SCHOOL;

DISTINCT(SUBJECT)
ENGLISH
PHYSICS
MATHS
CHEMISTRY

½ Mark for each correct output

No marking for partial or incorrect output

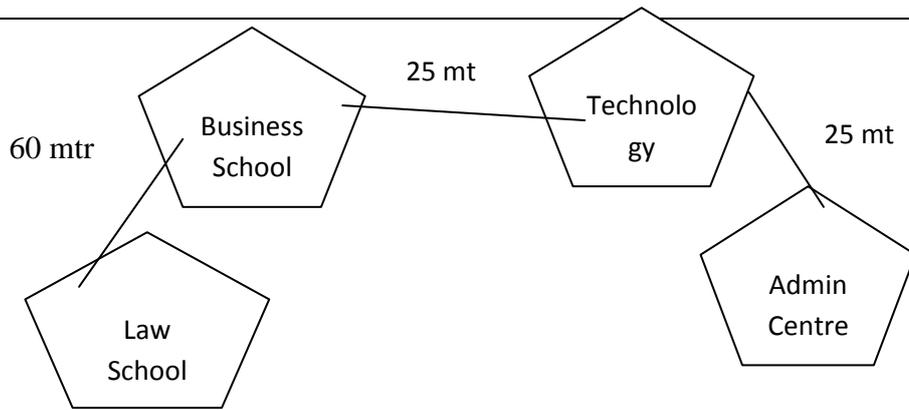
6(a) State Absorption law and Verify it using Algebraic Method.

This law states that

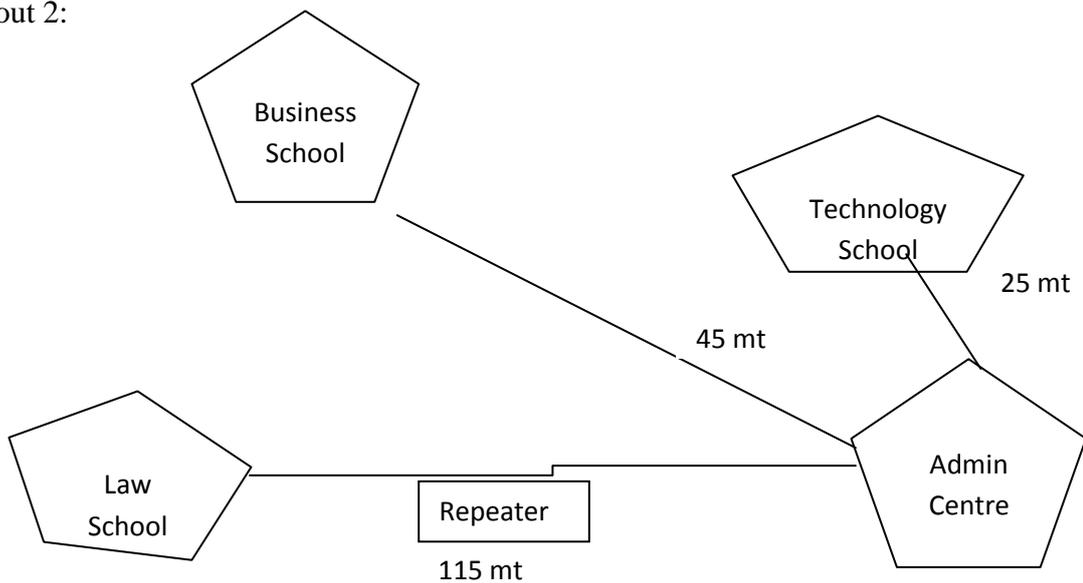
2

	<p>i) $X + XY = X$</p> <p>Proof</p> <p>LHS: $X + XY$</p> <p>$= X + (1+Y)X$ [X is common]</p> <p>$= X [1+Y=1$ from properties of 0 and 1]</p>	<p>ii) $X(X+Y) = X$</p> <p>Proof</p> <p>LHS: $X.(X+Y)$</p> <p>$= X.X + X.Y$</p> <p>$= X + X.Y$ [Since $X.X = X$ Idempotence Law]</p> <p>$= X(1+Y)$ [X is common]</p> <p>$= X.1$ [$1+Y = 1$, Properties of 0 and 1]</p> <p>$= X$ [$1.X = 1$, Properties of 0 and 1]</p>	
<p>Marking</p> <p><i>1 Mark for Correct Law</i></p> <p><i>1 Mark for Proof using algebraic method</i></p>			
(b)	<p>Write the equivalent Boolean Expression for the following Logic Circuit.</p> <p>Ans: $(A+B')+(A'C')$</p> <p>Marking: <i>2 Mark for correct answer</i></p>		2
(c)	<p>Answer: POS expression for the ABOVE TRUTH TABLE IS AS BELOW</p> <p>$F(U,V,W) = (U+V+W).(U+V'+W).(U'+V+W)$</p> <p>Marking</p> <p><i>1 Mark for Correct POS Expression, No Partial Marking</i></p>		1
(d)	<p>Reduce the following Boolean Expression using K-Map:</p> <p>$F(A, B, C, D) = \Sigma(0,1,2,4,5,6,8,10)$</p> <p>Answer:</p> <p>There are three Quads</p> <p>Quad1 its reduced expression is $A'C'$</p> <p>Quad2: its reduced expression is $A'D'$</p> <p>Quad3: its reduced expression is $B'D'$</p> <p>Thus $F(A,B,C,D) = A'C' + A'D' + B'D'$</p> <p>Marking</p> <p><i>½ Mark for Correct Drawing of Number of squares for Minterms</i></p> <p><i>½ Marks for Correct labeling of Rows and Columns</i></p> <p><i>1 Mark for Correct grouping (i.e. Quad)</i></p> <p><i>1 Mark for reduced expression writing</i></p>		3

7(a)	<p>Smith email has been attacked with spam.</p> <p>These may be promotional mails from different advertisement groups.</p> <p>Smith must have checked some promotional offers while surfing the Internet.</p> <p>He should create filters in his email to stop receiving these unwanted mails</p> <p>Marking</p> <p>(1 Mark for writing correct Answer)</p> <p>(1 Mark for writing correct Justification to prevent Spam)</p>	2
(b)	<p>LAN(Local Area Network)</p> <p><i>1 Mark for correct answer</i></p>	1
(c)	<p>Ans:</p> <p>Simple Mail Transfer Protocol</p> <p>Voice over Internet Protocol (Voice over IP)</p> <p><i>½ Mark for each correct abbreviation</i></p>	1
(d)	<p>Ans:</p> <p>URL: http://www.XtSchool.com/default.aspx</p> <p>Domain name: XtSchool.com</p> <p>Marking</p> <p>(½ mark for each correct answer)</p>	1
(e)	<p>Ans: Following are the protection methods which is being used to counter network security threats</p> <p>(i) Authorization (ii) Authentication (iii) Biometric Systems (iv)Firewall</p> <p>Marking:</p> <p><i>1/2 Mark for each any correct protection method</i></p>	1
(f)	<p>(i) The most suitable place (Schools / Centre) to install the server of the University is Admin Centre because this Centre is having maximum number of computers thus decreasing the cabling cost. Also housing the server here will make most of the traffic local which is required by 80-20 network design rule.</p> <p>Marking</p> <p><i>½ Mark for Correct place selection and ½ marks for explaining its reason</i></p> <p>(ii) Layout 1</p>	4



Layout 2:



Marking : 1/2 Mark for each layout

(iii) **Switch** will be suggested to place/ Install in each Schools and Centre to efficiently connect all the computers within the Schools / Centre.

Marking: 1 Mark for correct answer

(iv) The University is planning to connect its Admin Centre in the closest big city, which is more than 350 kms from the University. Since distance is more than 100 kilometers hence **WAN** is the perfect choice.

Marking 1 Mark for correct answer

*****END*****