SOLUTION OF T.Y.B.COM APRIL 2010 COMPUTER SYS AND APPLICATION PAPER

Q1

a)

i) State whether True or False
    1) False   2)   False   3)   True   4)   False

ii) Answer the following in one or two lines:
    1) Switches are hardware devices that are used to connect multiple computers in a network.
    2) The full form of TCP /IP is Transmission Control Protocol/Internet Protocol
    3) It is an electronic way for exchanging messages through network. It is a faster way of communication.
    4) The Boolean Search Operators are
        1) AND
        2) OR
        3) NOT (ANY 2)

b)

i) Select the appropriate option from the following
    1) Client/ server based network   2)   Bus
    3) POP   4)   Meta Search Engine

ii) Give one difference between each of the following
    1) LAN and MAN

LAN	MAN
It is small network of connected computers, where in computers are connected to each other physically with the help of wire or cable.	It is bigger network of connected computers, where in computers are connected to each other physically with the help of fiber optic cable.

    2) BUS and RING Topologies

BUS	RING
In this structure a single network cable runs in the building / Campus & all nodes are linked with this communication line with two end points called as bus or backbone.	In this topology the network cable passes from one node to another until all nodes are connected in a form of a ring. Also : if one node fails the network fails: And Data travels in one direction only.

C)

i) What is Domain Name system? What is its purpose?

Short for Domain Name System (or Service or Server), it is an Internet service that translates domain names into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address. For example, the domain name www.example.com might translate to 198.105.232.4. These domains names are organized either on the basis of geographical regions or on the basis of type of organization.
Geographical Domains: - these use two letter country destinations

Example:

Domain	Type of organization
.in	Indian Websites
.uk	United Kingdom websites

Non-geographical domains
Example

Domain	Type of organization
.com	Commercial
.gov	Government organization

ii)   Explain any two wired transmission media.
Wired / bounded
Bounded media is a physical media also called as cabling system.
1) Twisted Pair:
Twisted pair is a wired transmission media. Two independent insulated copper wires are twisted around one another to reduce cross talk and electromagnetic induction.
Advantages
1)   Less Expensive
2)   Easy to maintain and easily available.
Disadvantage:
1)   Affected by noise and atmosphere
2)   Signal weakens as the distance increases
3)   Low transmission speed-upto 1Mbps

2.   Coaxial Cables
Also known as Coax, is a high frequency transmission cable, which consists of single copper wire instead of multiple wires.
It consists of two different conductors that share the same access.
The first is the inner conductor mainly made up of copper embedded in an insulator made up of plastic. The second conductor is a shield of wire with tube or metallic foil. The outer insulation is made up of tough plastic.
Example : RG-75 used for cable television.
Advantages:
1.   Used in large networks
2.   Reduce electric interferences
3.   It transfer data at the rate of 10 Mbps
Disadvantage
1.   Costly than twisted wire pair
2.   Distance travelled is 2 to 10 miles.

3.   Fibre Optic Cables
A *fiber-optic cable* is a thin strand of glass that transmits pulsating beams of light rather than electric current. Fiber-optic cable can carry data at more than a billion bits per second. Fiber-optic cable is immune to the electromagnetic interference that is a problem with copper wire. Fiber optic cable is not only extremely fast and can carry enormous number of messages but is a very secure transmission media.

Q2
a)
i) State whether the following statements are true or false
   1) False
   2) False
   3) False
   4) True

ii) Answer in one line each of the following
   1) What is the meaning of the terms 'Portals' in E-commerce?
      Portal Offers powerful search tools plus an integrated package of content and services. These services typically utilize a subscription / advertising / revenues / transaction fee model. e.g Google, Yahoo
   2) What is Encryption?
      Encryption is the process of transforming plain text or data into cipher text (random text) that cannot be read by anyone outside of the sender and the receiver.
   3) What is the full form of P2P in E-Commerce?
      The full form of P2P is Peer – To- Peer
   4) What is Digital Signature?
      Digital signature is a way to ensure that an electronic document is authentic. Digital signature helps in identify information about who created the document and whether it is safe or not

b)
i) Select the appropriate option from the following
   1) Advertising Revenue   2) Digital Signature
   3) HTTPS   3) Secure Sockets Layer

ii) Give one difference between each of the following
1) B2C and C2C types of E-commerce

B2C	C2C
This is Business to Consumer commerce. It is defined as any business selling its product or services to consumers over the internet for their own use.	This is Consumer to Consumer commerce. A virtual market place on the internet in the form of a website enables individual sellers and buyers to exchange goods, online auctions.

2) Richness and Information density features of E-commerce

Richness:
It refers to the complexity and the content of a message. Unlike traditional commerce where a seller is in direct contact with the buyer and can communicate the features of a product or a service in E-commerce advanced software is used to communicate these features to a large number of users.

Information Density
A large variety of information is provided to the user through various database access. Information becomes more plentiful, less expensive and of high quality.

And it allows for customization of services   to the user.

C)

1)   Explain Secure Electronic Transaction in E-commerce

The SET (Secure Electronic Transaction) Protocol

SET   is a standard protocol for security credit card transactions over insecure networks. SET is actually a protocol designed for handling credit card transactions over Internet.

SET   ensures the identities of all parties involved in the transaction.

SET   also encrypts credit card and transaction information before transmission on the Internet.

SET   is supported to satisfy the following security requirement in the context of credit card payment.

1) Confidentiality: Sensitive message are encrypted so that they are kept confidential.
2) Integrity: Nearly all message are digitally signed to ensure content integrity.
3) Authentication: authentication is performed through a public key infrastructure.

♦   Thus far, has not caught on much, due to costs involved in integrating SET into existing systems, and lack of interest among consumers

2)   What are the limitations of E-commerce?

Limitations of E-commerce

- Expensive technology:
  This technology uses internet and for that PC and internet connectivity is required which makes it expensive.
- Complex Software interface:
  Using web requires installation of complex software (operating system) and programs are difficult to understand.
- Sophisticated skill set:
  The skills required making effective use of internet and e-commerce capabilities are far more sophisticated then using television and newspaper.
- Persistent cultural attraction of physical markets and traditional shopping experiences.
- Persistent global inequality limiting access to telephones and personal computers.
- Credit Card security is a serious issue if vulnerable
- Costs involved with bandwidth and other computer and server costs
- Extensive database and technical knowledge and experience required
- Customer apprehension about online Credit Card orders
- Constantly changing technology may leave slow businesses behind
- Some customers need instant gratification, and shipment times interrupt that
- Encourages competition between small and large online retailers

Q3

a)

i) There exist a table called SALARY containing columns Employee number(ENO, integer, primary key), Employee's name (ENAME, character), Gender (GENDER character, width 1) and BPAY(basic pay, width 7 with two decimals).

   i) Display Employee's number, gender and basic pay for all the employees.

           SELECT   eno, gender, bpay
           FROM   salary;

   ii) Display Employee's number, employee's name, gender and 30% basic pay as HRA for all the employees

           SELECT   eno, ename, gender, bpay*0.30 AS 'HRA'
           FROM   salary;

   (It is also correct if HRA is not given in quotes.)

ii) Explain the Use of the MySQL functions

   1) LOWER()

   Returns the string with all alphabets changed to lowercase, other characters remains as it is. Example SELECT LOWER("ABC"); will display abc in lower case.

   2) ABS()

   Returns the absolute value of X. SELECT ABS(-234); will display 234.

iii) Write a MySQL statement to create a table named OFFICE containing information of the employees with the following columns, Employee number (EN integer primary key), Employee name (ENAME character variable width 20, should not be empty), gender (GENDER character width 1 default value as "m") and date of joining (DOJ date)

           CREATE TABLE office
           (
           en   int PRIMARY KEY,
           ename   varchar(20) NOT NULL,
           gender   char(1) DEFAULT "M",
           doj   date);

b)

i) There exists a table called WAGES containing columns Employee id (EMP_ID, integer primary key), Employee name (NAME CHARACTER), department name (DEPT character) and Basic pay (BASIC width 7 with 2 decimal places).

   1) Display department name, number of employees in the department and total of the basic pay of the employee grouped department wise

           SELECT   dept, COUNT(dept), SUM(basic)
           FROM   wages
           GROUP BY dept;

   2) Display each department name and the minimum and maximum basic pay grouped department wise

           SELECT   dept, MIN(Bpay), MAX(bpay)
           FROM   wages
           GROUP BY dept;

2) There exist a table STUDENT containing columns student's roll number (RNO, integer primary key), student's name (SNAME character) and date of birth (DOB date). There exists another table EXAM containing columns roll number (RNO, primary key), class (CLASS character), total marks (TOT integer). Write MySQL

statement to display the Roll number, name and total marks of the student whose total marks are 350 or more.

SELECT	E.RNO, SNAME, TOT
FROM	STUDENT AS S
INNER JOIN	EXAM AS E
ON	S.RNO=E.RNO
WHERE	TOT>=350;

Or

SELECT	EXAM.RNO, SNAME, TOT
FROM	STUDENT
INNERJOIN	EXAM
ON	STUDENT.RNO=EXAM.RNO
WHERE	TOT>=350;

(Also SELECT EXAM.RNO, SNAME,TOT FROM STUDENT INNER JOIN EXAM WHERE TOT>=350 USING(RNO);

Also SELECT	EXAM.RNO, SNAME, TOT
FROM	STUDENT, EXAM
WHERE	STUDENT.RNO=EXAM.RNO AND
	TOT>=350;

)

c)

i)   There exist a table called EMP containing columns Employee name (ENAME, character), Date of birth (BDT, date), Address (ADDR character), Gender (GEN character), and phone number (PHONE integer). Write MySQL statement for the following:

1)   Display the structure of the table
       DESCRIBE emp; OR DESC emp; OR SHOW COLUMNS FROM emp;

2)   Add a column called BONUS having width 7 with 2 decimals to the table
       ALTER   TABLE   emp
                 ADD   bonus   DECIMAL(9,2);

3)   Rename the column BONUS as BON

       ALTER   TABLE   emp
                 CHANGE   bon   bonus DECIMAL (9,2);

4)   Delete the table emp.
       DROP TABLE emp;

ii)   There Exists a table called PAYEE containing columns Payee's identification (PAYEE_ID integer), Payee's name (NAME character), and sales tax (STAX width 7 with 2 decimal places). Write a MySQL subquery to display Payee's identification, payee's name and sales tax for those payees whose sales tax payment is above the average sales tax.

SELECT	payee_id, name,stax		
FROM	payee		
WHERE	stax	>	(SELECT AVG(stax) FROM payee);

Q4.

a)

i) Give the difference between the following reference to C language

1) scanf()   gets()

scanf()	gets()
scanf is a input statement which is **not capable accepting multiword strings**	gets()is an input statement which **is capable of accepting multiword strings.**

2) putchar()   puts()

putchar()	puts()
print only character data.	**Generates line feed** automatically
.	Or
	Prints only string data

ii) Give the output of the following C-program
main()
{float a=-3517.276, b=48.99
printf("%+010.2f %-6.1f\n", a, b);
printf("%+08.1f %+-5.0f\n", a, b);}

Output is
00-3517.28^48.0^^
0-3517.3^+49^^

Or
^^-3517.28^48.0^^
^-3517.3^+49^^

(P.S. marks should not be cut if the student has given blanks instead of leading or trailing zeros)

b)

i) Answer the following with reference to C language

1) What is an escape sequence? Give an example
The characters on keyboard can be printed or displayed by a press on the key. But some characters such as line feed, form feed, tab etc cannot be printed or displayed directly
Example
\n   End of a line
\t   Horizontal tab

2) What are identifiers in C language? Give one Example
Every C word is classified as either a keyword or an identifier. These are defined by the users and are names given to various program elements, such as Variables, Arrays and function.
Examples: sales, eno.

ii) Write a program in C language to find and display the sum of
$5x2^2 + 7x5^2 + 9x8^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots + 23x 29^2$

```
/*sum of series*/
#include<stdio.h>
#include<math.h>
main()
{
float s=0,i,j;
for(i=5,j=2;i<=23,j<=29,i=i+2,j=j+3)
{
s=s+i*pow(j,2);
}
printf("sum of series=%.2f\n",s);
return 0;}
```

C)

1) What is the difference between break and continue statement in C language?

Break	**Continue**
break statement causes an immediate exit from the loop structure. It can also be used along with the switch statement to terminate the switch statement.	continue statement bypasses the remaining statements of the loop and forces the next repetition of the loop to take place.

2) Write a C program to input the invoice number (ino) and sales amount (sa) and print the invoice number, sales amount, sales tax (st) and total amount (t) where the sales tax is calculated on the sales as follows:

Sales	sales tax
First 10,000	2%
Next 25,000	4%
Excess	5%

```
/*sales tax*/
#include<stdio.h>
main()
{
int ino;
float sa, st,t;
printf("enter invoice number, sales amount");
scanf("%d %f", &ino, &sa);
        if(sa<=10000)
                st=sa*0.02;
else
        if(sa>10000 && sa<=350000)
                st=(sa-10000)*0.04+10000*0.02
                        or      (st=(sa-10000)*0.04+200)
else
                st=(sa-35000)*0.05+25000*0.04+10000*0.02;
                        or      (st=(sa-35000)*0.05+1000+200)
t=sa+st;

printf("invoice number=%d\n",ino);
```

```
printf("sales amount=%.2f\n",sa);
printf("total amount=%.2f\n",t);
return 0;
}
```

Q4

a) i) State True or False
   1) True
   2) False
   3) True
   4) False

   ii) 1) The toolbox holds the different tools you use to place controls on a form. It displays the various controls which can be selected and dragged on to the form in a desired location. The controls can also be placed by double clicking the desired control in the Tool box.
   2) Name and Text (These are the most common properties however any other properties such as font. Alignment etc are also correct.

b) i) 1) Check boxes allow the user to select or deselect an option. In a group of check boxes any number of check boxes may be selected.
   Option Buttons are used when it is desired to allow the user to select only one option from a group of options.
   2) Both Combo boxes and List boxes are used to display lists of items from which the user can select an item. Combo box gives the additional facility of entering an item (which is not available in the list displayed) in a text box. A combo box is a combination of a list box and a text box.

   ii) Create the following controls on a Form called frmOddeven with the stated properties and setting

Object Type	Property	Setting
Form	Name	frmOddeven
	Caption	Odd or Even
Label	Name	lbl1
	Caption	Enter a Positive Number
Text Box	Name	txt1
	Text	Blank
Command Button	Name	cmdRes
	Caption	Display Result

In the code when command button is clicked

```
Private Sub cmdRes_Click()
Dim x As Integer
x = Val(txt1.Text)
If x Mod 2 = 0 Then
MsgBox ("The Number is Even")
    Else
```

MsgBox ("The Number is Odd")

End If
End Sub

(P.S. There are other alternatives such as using a label for displaying results rather than using MsgBox statement, or using the Print statement, also it is not necessary for the variable x to be declared. The condition may also be if int(x/2)=x/2)

c) i)   A Common dialog box control is used to allow the user to make some standard selections in situations such as selecting colors and fonts, selecting options while printing and saving files.

    ii) Create the following controls on a Form called frmConvert with the stated properties and setting

Object Type	Property	Setting
Form	Name	frmConvert
	Caption	Currency Converter
Frame	Name	Frame1
	Caption	Select an Option
Option Button	Name	opt1
	Caption	Rupees To Dollar
Option Button	Name	opt2
	Caption	Dollar To Rupees
Label	Name	lbl1
	Caption	Enter the Currency Amount
Command Button	Name	cmdRes
	Caption	Convert
Text Box	Name	txt1
	Text	Blank

In the code when command button is clicked

```
Private Sub cmdRes_Click()
If opt1.Value = True Then
MsgBox (txt1.Text & " Rupees is equal to " & Str(Val(txt1.Text) / 45) & " Dollars")
Else
MsgBox (txt1.Text & " Dollars is equal to " & Str(Val(txt1.Text) * 45) & " Rupees")
End If
End Sub
```

(P.S. There are other alternatives such as using a label for displaying results rather than using MsgBox statement, or using the Print statement, also the actual currency conversion rate is not important. 3 Marks be given if the student has mentioned the appropriate controls and their settings. 3 Marks for the Code)

Q5

a)

i) Explain the terms Absolute reference and Relative cell reference in relation to spreadsheet

ABSOLUTE REFERENCE

If absolute reference is used in a formula and the formula is copied to another location then row as well as column cannot change. In absolute reference two $ signs are used, one before the column and one before the row. Example A1.

RELATIVE REFERENCE

If relative reference is used in a formula and the formula is copied to another location then row as well as column can change. In relative reference no $ sign is used.

ii) Answer the following using spreadsheet:

	A	B	C	D	E	F	G	H	I
1	Name	Eng	Hin	Eco	Bk	a/c	Tax	Average	Result
2	Gupta	76	63	78	66	86	68		
3	Suri	54	49	48	52	46	59		
4	khan	72	69	66	78	75	81		
5	jude	87	73	84	82	91	93		
6	minaz	54	49	28	31	17	21		

Steps

1) Select the cell H2 and type the formula as

    or   Click the cell H2 and type the formula

    =MAX   (B2+C2+D2+E2+F2,   C2+D2+E2+F2+G2,   D2+E2+F2+G2+B2, E2+F2+G2+B2+C2, F2+G2+B2+C2+D2, G2+B2+C2+D2+E2)/5

                                OR

    =(SUM(B2:G2)-MIN(B2:G2))/5

2) Select the cell H2 and drag the fill handle till cell H6.

    Or   Click the cell H2 and drag the fill handle till cell H6

3) Select the cell I2 and type the formula as

    Or   Click the cell I2 and type the formula as

    =IF(H2>=50, "PASS", "FAIL")

4) Select the cell I2 and drag the fill handle till cell I6.

    Or   Click the cell I2 and drag the fill handle till cell I6

b)

i) Explain the use of the following functions in spreadsheets

    1)   PMT()

PMT: (gives payment with interest)

Calculates the payment for a loan based on constant payments and a constant interest rate.

    2)   SUMIF()

SUMIF

Adds the cells specified by a given criteria.

ii) Answer the following using spread sheet

In a worksheet, Names are entered in column A and corresponding basic pay is entered in column B for 30 persons, the first row contains the heading and the rest of the rows contains data. Write the steps to obtain in column C, D and E the HRA, DA and total pay where HRA is @20% of basic pay or Rs 5000 whichever is less and DA is 25% of basic pay whenever basic pay is less than 5000 otherwise it is 40% of basic pay.

Steps
To calculate HRA
1)   Select the cell C1 and type the heading 'HRA'
           Or   Click the cell C1 and type the heading 'HRA'
2)   Select the cell C2 and type the formula as
           Or   Click the cell C2 and type the formula as
    =MIN(B2*20%,5000)
3)   Select the cell C2 and drag the fill handle till cell C31.
           Or   Click the cell C2 and drag the fill handle till cell C31

To calculate DA
1)   Select the cell D1 and type the heading 'DA'
           Or   Click the cell D1 and type the heading 'DA'
2)   Select the cell D2 and type the formula as
           Or   Click the cell D2 and type the formula as

    =IF(B2<=5000,B2*25%,B2*40%)
    Or
    =IF(B2<=5000,B2*0.25,B2*0.40)

3)   Select the cell D2 and drag the fill handle till cell D31.
           Or   Click the cell D2 and drag the fill handle till cell D31
To calculate TOTAL PAY
1)   Select the cell E1 and type the heading TOTAL PAY
           Or   Click the cell E1 and type the heading 'TOTAL PAY'
2)   Select the cell E2 and type the formula as
           Or   Click the cell E2 and type the formula as
    =SUM(B2:D2)
3)   select the cell E2 and drag the fill handle till cell E31.
           Or   Click the cell E2 and drag the fill handle till cell E31

c)
i)   What is the difference between sort and filter options with reference to spreadsheets>

Sort	Filter
Sorting means to arrange the data or records in ascending or descending order	Filtered data displays only the rows that meet criteria that you specify

ii)   Answer the following with reference to spreadsheets:
    A spreadsheet contains roll no and marks out of 100 in 4 subject entered in columns A, B, C, D, E respectively in first 26 rows. The first row contains headings and

subsequent rows contains data. Write the steps to find average and grade in column F and G respectively where grade is to be assigned as follows:

Average	Grade
75 or more	A
60 or more and below 75	B
Below 60	C

Steps

To calculate average
1)   Select cell F1 and type the heading 'Average'
                        Or   Click the cell F2 and type the heading 'Average'
2)   Select the cell F2 and type the formula as
                        Or   click the cell F2 and type the formula as
            =AVERAGE (B2:E2)
3)   select the cell F2 and drag the fill handle till cell F101.
                        Or   click the cell F2 and Drag the Fill handle till cell F101

To calculate Grade
1)   Select the cell G1 and type the heading ' Grade'
                        Or   Click the cell G1 and type heading ' Grade'
2)   Select the cell G2 and type the formula as
                        Or   click the cell G2 and type the formula

            =IF (F2>=75, "A", IF(F2>=60, "B", "C")
                  OR
            =IF (F2>=75, "A", IF(AND(F2>=60, F2<75), "B", "C"))
3)   Select the cell G2 and drag the fill handle till cell G101
                        OR   Click the cell G2 and Drag the fill handle till cell G101