Sample Paper – 2015
Class – XII
Subject –COMPUTER SCIENCE

Some Important Questions Networking

1. What is circuit switching? What is packet switching? Message switching? (Hint Point Wise)

Circuit Switching: Dedicated Path for duration of Communication**,** Physical switched must me closed, Transmission via Intermediate node, For Telephonic communication

Message Switching: Each station must stored message then forward entire message over conjunction free path, Unable to store the large amount of message, each station or node must have large capacity of storage.

Packet Switching: Message divided into packets and routed through the different path. Each packet takes the different path to reach the destination end. When packets are received by the destination station. They are reassembled.

2. Inter net Device: HUB/Swith, **Modem,** Bridge, Router, Gateway, Repeater. **Bluetooth , Infrared , Wi Fi**

3. Transmission Media: Twisted Pare Cable, Coaxial ,Fiber Optics , Topology

4. Differences between the **LAN, MAN and WAN?**

5. Application of Networks? (two), **ARPANET**, E-mail , chat , video conferencing

6. **Web pages**(A document made by the web languages, run with http protocol), **web site**(Collection of web pages group under one common name),web hosting , **web browser** (is platform where all the web site visit) , **web server** (It is www , transmit the information to web browser), **web address :** particular address of web site on net server, **e-mail address** – particular address of net user , it is combination of user name and hostname separated by @.

7. Full Form

1	***XML***	2.	HTML	3.	SMTP, http	4.	**CDMA**	5.	***GSM***
6.	***TCP/IP***	7.	NSF	8.	PPP/SLIP	WiFi		9.	TDMA
10.	OOo	11.	***ARPA***	12.	MAN	13.	***SMS***	14.	***EDGE***
15	UMTS	16.	3G	17.	WLL	18.	IPR	19.	WWW
20.	ICMP	21.	MAC	22.	FSF **(Free Software Foundation)**				

SLIP Serial Line Internet Protocol **MAC** Media Access Code
EDGE Enhanced Data rates for Global Evolution.
UMTS Universal Mobile Telephone System.
FLOSS Free Libre and Open Source Software. The term FLOSS is used to software which is both free software as well as open source software.
ICMP Internet Control Message Protocol.

***Open source software*:** is software that freely available on net or whose source code easily can be modified and redistributed for further use. Some open source software can be freely downloaded from the website www.openoffice.org

Proprietary Software- is software that neither open nor freely available. It use is regulated and further distribution and modification is either forbidden or requires special permission by the supplier.

Freeware – The term freeware has no clear definition, but is generally used for software, which is available free of cost and which allows copying and further distribution , but not modification and whose source code is not available.

Shareware- Shareware is software that freely available for the time being for the purpose of testing, demostrastation purpose , for further use the such software have to pay it.

7. **Script:** Script is list of command apply in a web page that executed by scripting-engine

Two Scripts: **Server Side:** ASP (**Active Server Page**) JSP **Java Server Page** pHP **Preprocessor Hypertext**

Client Side: VB Script Java Script

8. **Cookies**: are the message that web server transmit to a web browser so that the web Server can keep track of the User's activity on specific Web site

9. ***Hacker,*** Hacker are the such types of knowledgeable person who enthusiast with gaining the knowledge of computer system, they do not believe to destroy the things; these are mainly two types 1. White hat 2. Black hat.
Cracker are such types of knowledgeable person who believe to destroying the things, and gaining the knowledge about computer system with out permission.
Cyber laws are the some specific rules and regulation govern to control on the cyber crime or net crime ,and control the misuse of net like stealing banking password etc.
***SPAM*: -** It refers to electronic junk mail or junk newsgroup postings. Some people define it as any unsolicited e-mail**.**
Read this -- Cyber crime, IPR Worms Virus (Trojan, Worms)

10. Some technical based questions (4 Marks)

Hint: - Server:	Large number of computer in building
HUB/Switch:	Each Building
Modem	In server room
Best Layout	Star (From Server), BUS topology
Best cable	Twisted Pair, Ethernet Cable, co-axial cable (When distance in Meter)
Best Cable	For Large distance Fiber optical

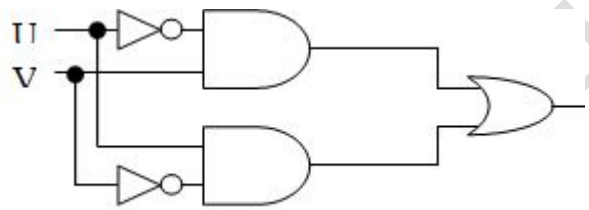
Best connecting technique: In Hilly region, city to city, state to state (Satellite**) or Radio wave**

Boolean Algebra

1. State and prove the ***Demorgan's Law*** with TT and Algebraically?
2. Design the Circuit for the following Boolean expression using NOR gate only.
3. Design the K-map F(A,B,C,D) ∑ (0, 1, 2, 4, 5, 6, 8, 10)

(a State and algebraically verify Demorgan Laws. 2

(b Write the equivalent Boolean Expression for the following Logic Circuit 2



(c) ***Write the POS form of a Boolean function F, which is represented in a truth table as follows:*** 1

A	B	C	F
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

(d) Reduce the following Boolean Expression using K-Map: 3
F(A,B,C,D)=∑(0,1,2,4,5,6,8,10,11,14,15)

6. (a) State and verify Distributive law in Boolean Algebra. 2

(b) Convert the following Boolean expression into its equivalent Canonical Product of Sum (POS) form.

PQR + PQ'R + PQ'R' + P'Q'R 2

(c) Obtain a simplified form for a Boolean expression 2

F (a, b , c, d) = ∏ (0, 1, 3, 4, 5, 6, 7, 9, 10, 11, 13, 15) using Karnaugh Map.

(d) Represent the Boolean expression A'. (B+C) with the help of NOR gates only. 2

6 a) State and Verify Absorption Law in Boolean algebra. 2

b) Write the equivalent POS expression of following SOP form
F (x, y, z) = ∑ (0, 2, 4, 6) 2

c) Draw the Logical circuit of the following expression with the help of NAND gate only x+yz 1

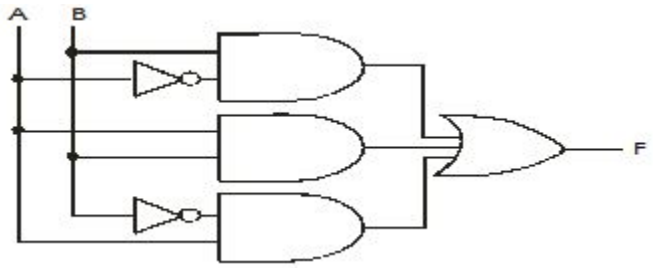
d) Obtain the simplified form of a Boolean expression using K-Map. 3
F(a,b,c,d)=∑(0,1,2,3,4,7,11,12,14)

6. a) What is Truth Table? What is duality and complement? **2**

b) If ***F(A,B,C,D) = ∑(0,1,2,4,5,7,8,10)*** , obtain the simplified form using ***K-Map***. **3**

c) Convert the following Boolean expression into its equivalent Canonical ***Sum of Products form (SOP)*** : **2**
(X+Y+Z) (X+Y+Z') (X'+Y+Z) (X'+Y'+Z')

d) Write the equivalent Boolean Expression F for the following ***circuit diagram***: **1**



Data Structure

(a) If an array B [11] [8] is stored as column wise and B [2, 2] is stored at 1024 and B [3, 3] at 1084. Find the addresses of B [5, 3] and B [1, 1].

Column Major Order
A[i] [j] = B + [(i- LB1) + (j – LB2) * Row] * S
Row Major Order **Where LB1 FROM ROW, LB2 FROM COL**
A[i] [j] = B + [(i- LB1)*Col + (j – LB2)] * S

Stack Priority Order Exponent, Division, Multiply, Addition, Subtraction **-------** NOT AND OR

(b) Define functions stackpush( ) to insert nodes and stack pop( ) to delete nodes, for a linked list implemented stack

```
struct node
{
char country_name [20];
int code;
node *LINK;
};

class stack
{
node * top, * ptr, * temp;
public:
stack ()
{
        Top= NULL;
}
};
void stack:: push (char name1[ ], int data)
{
node * newptr= new node;
strcpy(newptr->country_name, name);
newptr->code=data;
newptr->link= top;
top= newptr;
}
```

```
void stack::pop()
{
temp= top;
top= temp- > link;
delete temp;
if (top== NULL)
cout<< "\n Under Flow"
}
```

(c) ***Define function insert ( ) to insert nodes and delete ( ) to delete nodes, for a linked list implemented Queue.***

(d) Define function insert () to insert the item and delete () to delete item for circular queue.

SQL

Q 5. **(a)** Explain Primary key and Foreign Key, Candidate key, Alternate key, in context of RDBMS. Give Suitable example.

Explain the DDL and DML

2

Explain the table, cordiality, tupple, domain, relation, DBA, End user, Data model

(b) Consider the following table DRESS and MATERIAL. Write SQL commands for the statements (i) to (iv) and give outputs for SQL quarries (v) to (viii).

6

Table: DRESS

DCODE	DESCRIPTION	PRICE	MCODE	LAUNCHDATE
10001	Formal Shirt	1250	M001	12-JAN-08
10020	FROCK	750	M004	09-SEP-07
10012	INFORMAL SHIRT	1450	M002	06-JUN-08
10019	EVENING GOWN	850	M003	06-JUN-08
10090	TULIP SKIRT	850	M002	31-MAR-07
10090	PENCIL, SKIRT	1250	M003	19-DEC-08
10023	SLACKS	850	M003	20-OCT-08
10089	FORMAL PANT	1450	M001	09-MAR-08
10009	INFORMAL PANT	1400	M002	20-OCT-08
10024	BABY TOP	650	M003	07-APR-07

TABLE: MATERIAL

MCODE	TYPE
M001	TERELENE
M002	COTTON
M004	POLYESTER
M003	SILK

(i) To display DCODE and DESCRIPTION of each dress in ascending order of DCODE.

(ii) To display the details of all the dresses which have LAUNCHDATE in between 05-DEC-07 and 20-JUN-08 (inclusive of both the dates)

(iii) To display the average PRICE of all the dresses which are made up of material with MCODE as M003.

(iv) To display material wise highest and lowest price of dresses from DRESS table.
(Display MCODE of each dress along with highest and lowest price).

(v) SELECT SUM(PRICE) FROM DRESS WHERE MCODE= 'M001';

(vi) SELECT DESCRIPTION , TYPE FROM DRESS MATERIAL WHERE DRESS.DCODE>=1250;

(vii) SELECT MAX(MCODE) FROM MATERIAL ;

(viii) SELECT COUNT (DISTINCT PRICE) FROM DRESS.

File Handling

1. Write the function to count the upper , lower , digits, space , full stop, comma from the story.txt
2. Write the function to find the maximum length word or maximum length line from the story .txt
3. Write the function to copy the word into vv.txt from vow.txt from which starting character are vowels
4. Write the function to update and delete, search and display the records, and add the records into end of file. (given in book)

5. Program to write the word into a Text1.txt from Text.txt which contain the "**Carry Umbrella and Overcoat when it Rains**"
Which shall contain only those words which don't start with an upper case of vowel?

```
#include<fstream.h>
#include<iostream.h>
void main()
{
ifstream file("text.txt"); ofstream file1("text1.txt");  char ch[20];
while(!file.eof())
{
file>>ch;   switch(ch[0])
{case 'A':  case 'E': case 'I':  case 'O':  case 'U': //file1<<ch<<" "; continue ;}  //continue; file1<<ch<<" "; }  file. close();
}
```

Tips for Files Operations

File.seekg(0,ios::beg); with file.read((char*)&obj, sizeof(obj)); Reading character from file, declare char ch, file. get(ch);

File.seekp(0,ios::beg); with file.write ((char*)&obj, sizeof(obj)); Reading word from the file, declare char ch[20] , file>>ch

File.tellg();//return the total number of bytes associated with file Reading line from the file, declare char line[80], file.getline(line,80)

Pos=file.tellg ()/sizeof (obj); // return the position of object associated with file.

Inheritance

```
#include<iostream.h>
#include<conio.h>
class A    (6 byte)
{
int x;
 int y;
public
public:
  int z;
} (10 byte)
class B : public A
{
 int a;
 int b;
}; (4 byte)    (6 byte)    (10 byte)
class C:    public A, public B (Multiple)
 PUBLIC
{
Not Inherited
  int p;
Public
int q;
Protected
};
```

int	2 Byte	* From the Object Only public members can be access.
short	2 Byte	
*int, *float	2 Byte	* Members means: Data Member + Member function
*double, *char	2 Byte	* Member Functions of Class can access only own
double	8 Byte	private data of own class and protected ,
long double	10 Byte	of other classes based on visibility.
long float	8 Byte	
long int	4 Byte	
char	1 Byte	
unsigned int	2 Byte	

VISIBILITY MODE:	PRIVATE	PROTECTED
PRIVATE	Not Inherited	Not Inherited
PUBLIC	Private	Protected
PROTECTED	Private	Protected

Total Byte of Class C object 20 byte

Random Function – stdlib.h random (num-1)
N= random (2) ->minimum value =0 maximum =1
N1 = 4 + random (6) -> minimum value =4 maximum value = 9 (4+6-1)

Pointer: *++p move the address (Preference prefix)
++ *p increase the value
*p++ move the address (*p) ++ move the value

Constructor : is member function and same as a class name ,automatically called whenever object is created, it does not return any value.
It is two types (i) default constructor :- constructor without an arguments is called default constructor , it can be work with default value.
(ii) parameterized constructor : a constructor with an arguments is called parameterized constructor Ex.

```
class demo
{
int x;
float y;
public:
demo()
{
cout<< "\n Default constructor called "<<endl;
} };
void main()
{
demo d; // Default constructor
}
constructor
```

```
class demo
{
        char name[20];
        float y;
        public:
        demo(float b, char n[]= "sachin")
        {
                strcpy(name,n);
                y=b;
        } };
        void main( )
                {
        demo d(12.24, "Kumar"), d1(12.56);  // Parameterized

        }
```

Copy Constructor:
A copy constructor is member function , same as a class name , It have an arguments of references types its same class.

```
class demo
{
float y;
public:
demo(float b, char n[]= "sachin")
{
strcpy(name,n);
y=b;
} };
void main( )
{
demo d(12.24, "Kumar"), d1(12.56);  // Parameterized constructor
}
```