Subject-Computer Network, MCA- IIIrd Semester-2013

Max Marks -60

Section A

Note : Attempt all questions .All questions carry equal marks   10x2=20

- Define frequency and period.

  Ans: Periods refers to amount of time in second ,a signal needs to complete one cycle

  Frequency refers to number of periods in one second.

- Write formulae to show the relationship in between bit rate and bit interval.

  Ans :bit rate = 1/bit interval

- A sine wave has a frequency of 6 Hz .Find out its period in micro second.

  Ans : period = 1/6 sec = 0.1666×10^{-6} micro seconds

- Discuss the use of buffer at the receiver in flow control.

  Ans: In case of flow control, when execution speed of sender and receiver are different ,receiver machine needs to store data frame in its buffer memory.

- Why data link layer is divided into two sub layers.

  Ans : IEEE has standardized LAN protocol .In case of LAN data link layer is divided into two sub layers namely medium access layer (MAC) and logical link control .

  For detail Pl refer to PPT uploaded

- What are the three main elements of distance vector routing.

  Ans: 1. Knowledge about the whole network

  2. Routing only to neighbors

  3. Information sharing at regular interval

  These points must be explained in more detail

- Differentiate address resolution protocol (ARP) with reverse address resolution

protocol (RARP).

Ans : ARP stands for address resolution protocol works at network layer for mapping logical address to physical address .

RARP is reverse address resolution protocol works also at network layer for mapping physical address to logical address. Mostly used in case of diskless machines.

- Compare host-to-host protocol with port-to-port protocol with the name of protocol.

  Ans: host to host protocol : IP

  Port to port to port protocol :UDP and TCP

- What is cryptography?

Ans: Cryptography is the study of secret writing which consists about security ,authentication etc for providing data security two very popular algorithms private key cryptography and public key cryptography are used .

- What is the function of post office protocol (POP).

  Ans: POP (Post office protocol) is used to download mail from the server .Working of POP3 is shown in the following figure .
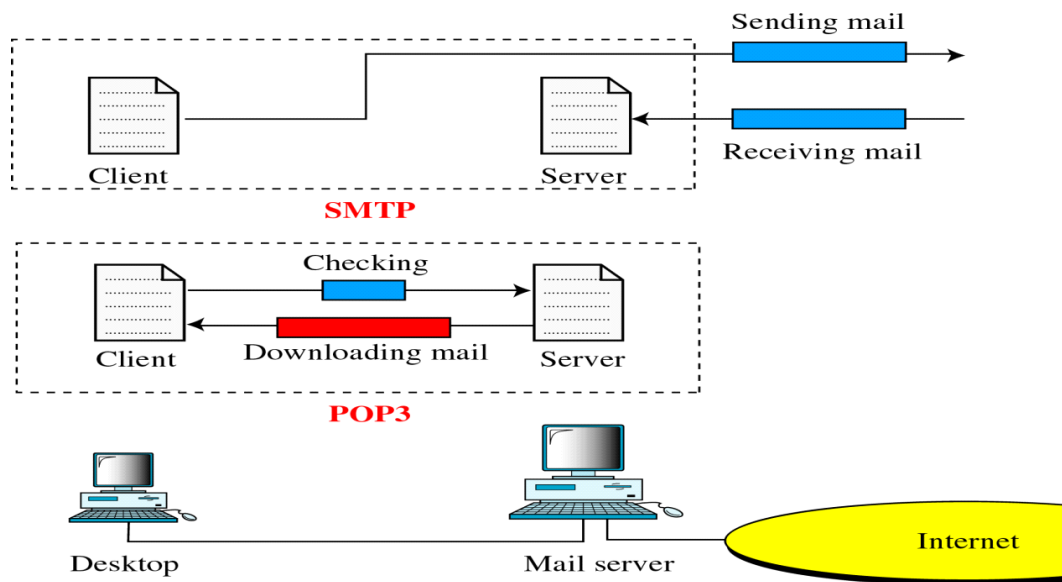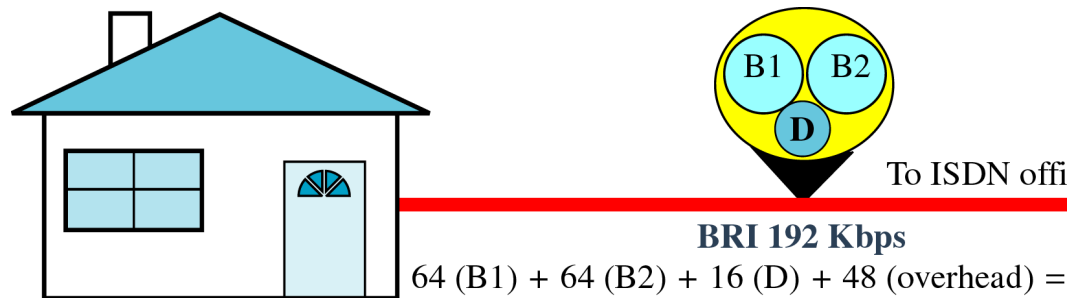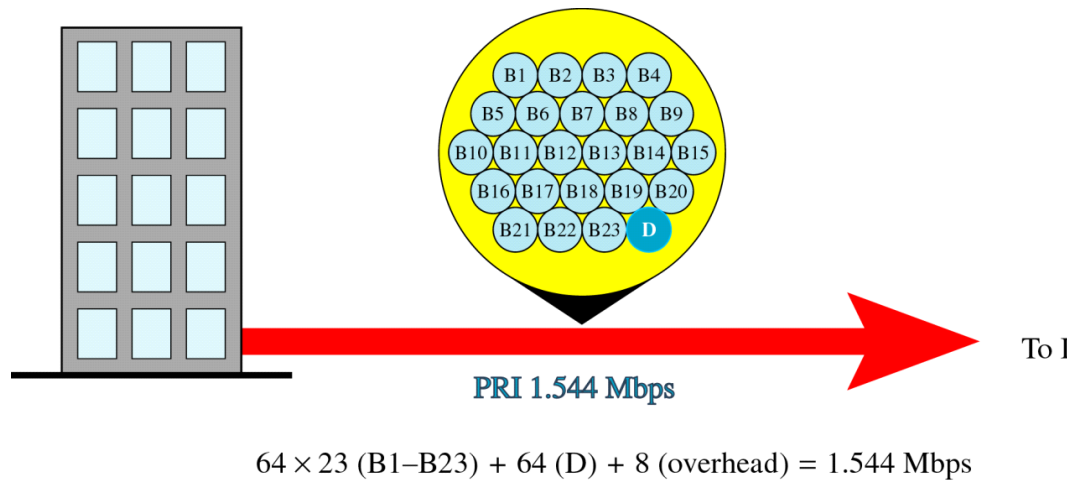
Note : Attempt any four questions. All questions carry equal marks. 4X10=40

- **(a)** Explain basic rate interface (BRI) and primary rate interface (PRI) in brief with its data rate.

    Ans:BRI

    BRI 192 Kbps
    64 (B1) + 64 (B2) + 16 (D) + 48 (overhead) =

    PRI:

    PRI 1.544 Mbps

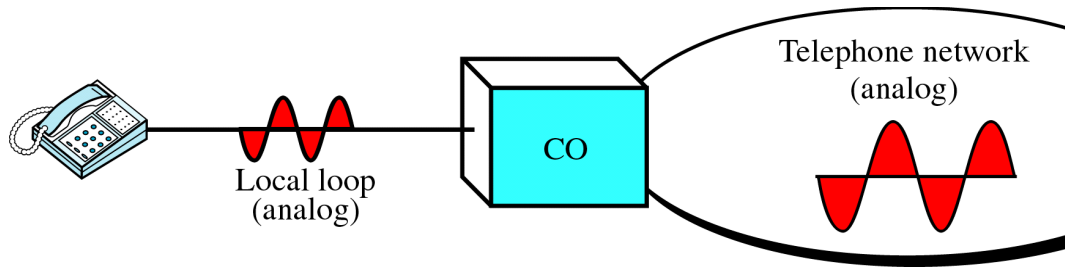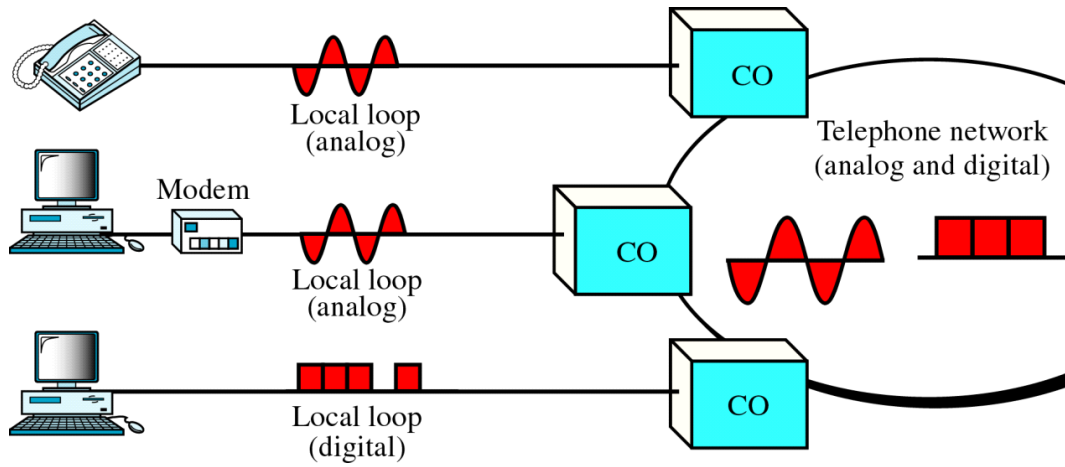 64×23 (B1–B23) + 64 (D) + 8 (overhead) = 1.544 Mbps

(b) Discuss briefly about evolution of integrated service digital network (ISDN).

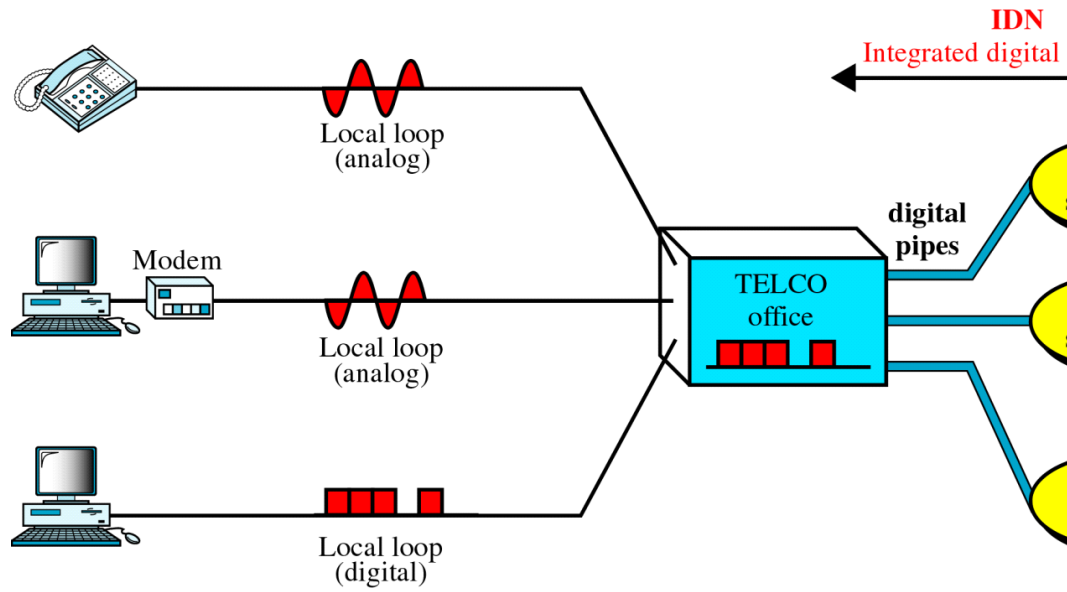Ans : Evolution of ISDN can be explained in form of figure as below:

a.Voice and data communication over an analog telephone network

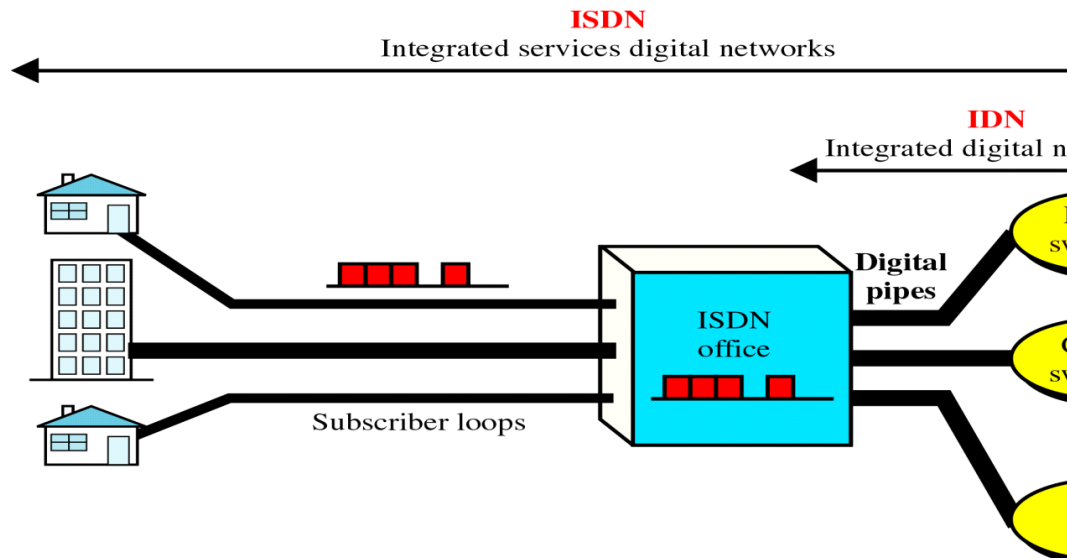**b.Analog and Digital Services over the Telephone Network**

- IDN

d.ISDN

ISDN
Integrated services digital networks

2. (a) What are the benefits of layered architecture? Explain TCP/IP model in detail.

Ans : 1.Maintence will be easier

    2. Easy Debugging

3.Fault tolerance etc

(b) What is attenuation? A signal travels through amplifier and its power is increased 10 times .Calculate gain/loss of power .

Ans: Attenuation means loss of energy .When a signal travels through a medium ,its losses some of its energy so that it can overcome the resistance of the medium .

$dB = 10 \log_{10} (P2/p1)$ p2=10 p1 as give in the question

hence $dB = 10 \log_{10} (10p2/p1) = 10 \log_{10} 10 = 10$ as $\log_{10} 10 = 1$

4.What are the two methods developed to control flow of data across communication links.

Ans : Two methods are :1. Stop and wait protocol and 2. Sliding window protocol

For more detail pl refer to PPT uploaded

5.(a) How a communicating device can hold more than one IP address.

Ans: A computer may be the part of intranet as well as internet .In both the cases computer will hold unique IP address for its identification separately in internet and intranet .

(b)How subnetting will be beneficial in terms of ARP request and response.

Ans: In LAN communicating devices sends ARP request before sending actual data ,this ARP request goes to all the computers in the LAN because ARP request is broadcasted.If we form subnetworks using subnetting then ARP request will go to only intended network instead of all the computers in LAN ,this will be beneficial in terms of bandwidth utilization.

Explain in more detail

6.(a) Find net-ID , host-ID and network address of following IP addreses

- 4.23.145.90 ii. 129.6.8.4

Ans: i. Net ID – 4 ,Host ID – 23.145.90 ,Network address – 4.0.0.0

ii. Net ID – 129.6 ,Host ID – 8.4 ,Network address – 129.6..0.0

(b)Find the subnet address for the following

- IP address- 125.34.12.56   Mask -255.255.0.0

- IP address- 120.14.22.16   Mask -255.255.128.0

Ans: i. 125.34.0.0 ii. 120.14.0.0

7.Explain error control and sequence control duties performed by transport layer. How error control at transport layer is different from error control at data link layer.

Ans:Data link layer functions guarantee error free delivery node to node for each link ,node to node reliability does not ensure end to end reliability for this error control at transport layer is required which is actually responsible for end to end error free delivery .

8.(a)Explain any two protocols related to e-mail.

Ans: Explain any of the following two protocols in detail for more detail refer to PPT uploaded

   MIME .POP3 and SMTP

(b)Explain the working of domain name system (DNS).

Ans: Domain name system: The **Domain Name System** (**DNS**) is a hierarchical distributed naming system for computers, services, or any resource connected to the Internet or a private network. It associates various information with domain names assigned to each of the participating entities. Most prominently, it translates easily memorized domain names to the numerical IP addresses needed for the purpose of locating computer services and devices worldwide. By providing a worldwide, distributed keyword-based redirection service, the Domain Name System is an essential component of the functionality of the Internet.

An often-used analogy to explain the Domain Name System is that it serves as the phone book for the Internet by translating human-friendly computer hostnames into IP addresses. For example, the domain name www.example.com translates to the addresses 93.184.216.119 (IPv4) and 2606:2800:220:6d:26bf:1447:1097:aa7 (IPv6). Unlike a phone book, the DNS can be quickly updated, allowing a service's location on the network to change without affecting the end users, who continue to use the same host name. Users take advantage of this when they use meaningful Uniform Resource Locators (URLs), and e-mail addresses without having to know how the computer actually locates the services.

DNS can be shown in the following figure

ude

Root

Inverse domain

Generic domains

Country domains
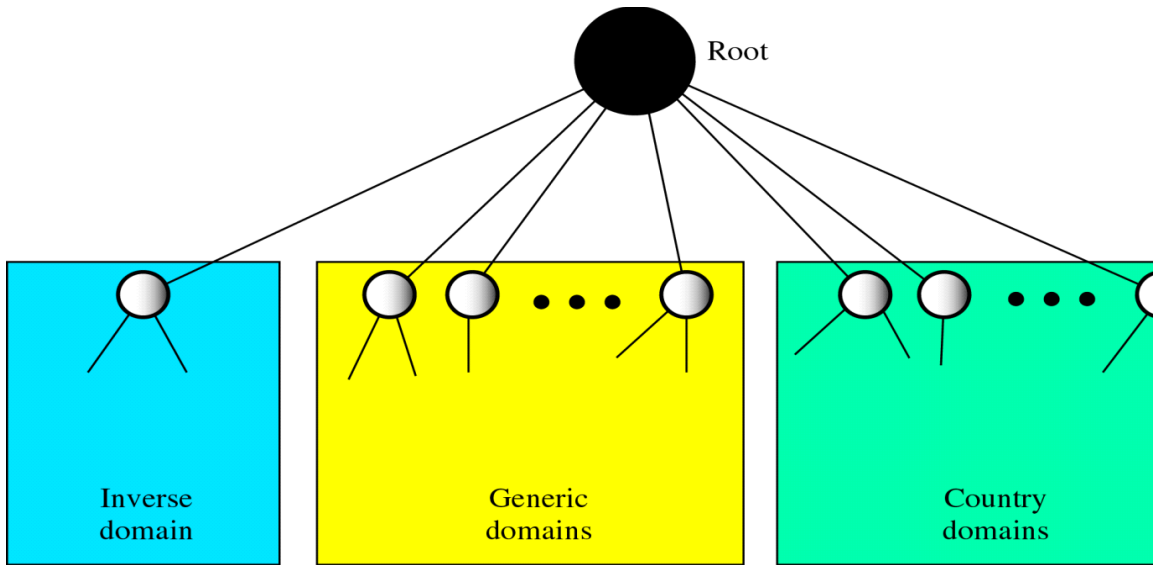
Note: Answers of the questions are written in short ,students are advised to verify their answers also from PPT uploaded in our official website ggu.ac.in and the reference books .