Dayananda Sagar College of Engineering

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(An Autonomous Institute Affiliated to VTU, Approved by AICTE & ISO 9001:2008 Certified)
(Accredited by National Assessment & Accreditation Council (NAAC) with 'A' grade)

Date of test : 30 / 4 / 2022	**Course Name**	Max Marks : 50 M.
Day : Saturday	Computer Communication & Networks	Course Mentor : TT
Branch : ECE UG/PG-DEC/VLSI		Course Mentor Sign :
Semester : 6	Course Code : 19EC6DCCCN	Staff i/c name : SAS
Section : A/B/C/D/	Internal Assessment Test	Staffs i/c sign :
Timings : 12.00 - 1.30 PM	CIE (I)/ II / III / Imp Test	HOD Name : Dr. TCM
Test Duration : 1½ Hrs.	Test Solutions & Scheme	HOD's sign :

Q. No.	Test question paper solutions with steps & answers	Marks Allocation
1	a) Jitter (iv) b) All of the above (iv) c) Virtual circuit identifier (ii) d) None (iv) e) Bits (i) f) $2^m - 1$ (i) g) 15 (ii) h) Data link & Transport layer (iv) i) Error Control (iii) j) Transport layer (ii)	10M
2 a)	i) Size of o/p frame = $(20 \times 1) + 1$ = 21 bits ii) The output frame rate = 100,000 frames/s (Each frame carries 1 bit from each source) iii) Frame duration = 1/frame rate = $\dfrac{1}{100,000}$ = 10μs iv) o/p Data rate = 100,000 frames/s × 21 bits $\qquad\qquad$ = 21 Mbps.	6M

2b.

Statistical TDM

Line A — A2
B — B2, B1
C
D — D2, D1
E — E1

MUX

Output: d D) b B2 a A2 — e E1 d D1 b B1

Explanation

4M)

3 a

i)

| A | ESC | FLAG | B | C | Data from upper layer |

↓ stuffed

Frame sent

| Flag | Header | A | ESC | ESC | ESC | FLAG | B | C | Trailer | flag |

Extra 2 bytes

Frame received

| Flag | Header | A | ESC | ESC | ESC | FLAG | B | C | Trailer | Flag |

↓ unstuffed

| A | ESC | FLAG | B | C | Data to upper layer |

3M
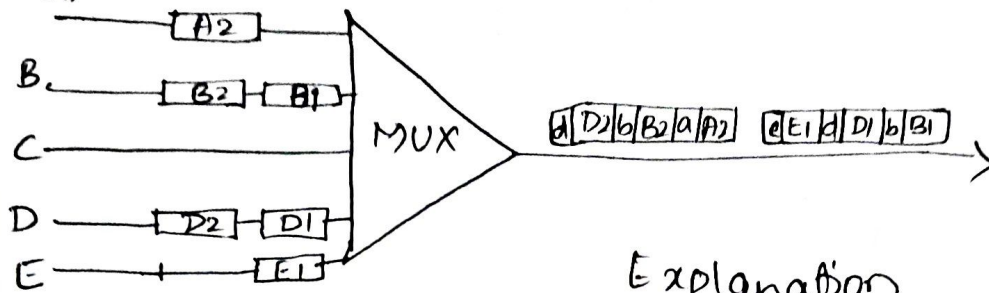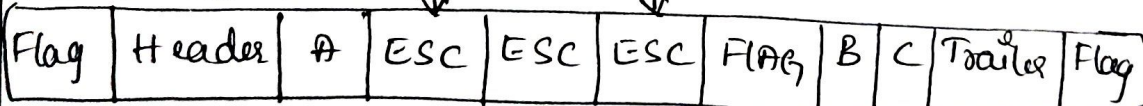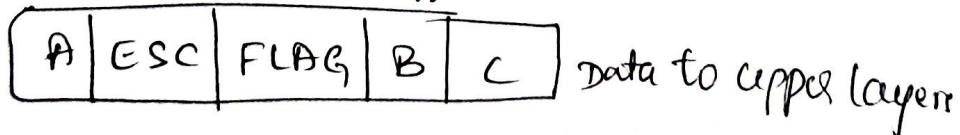
ii)

1011111 00111 1110

↓ stuffed

| Flag | Header | 1011111 0 00111 11 0 1 0 | Trailer | Flag |

| Flag | Header | 1011111 0 00111 11 0 1 0 | Trailer | Flag |

↓
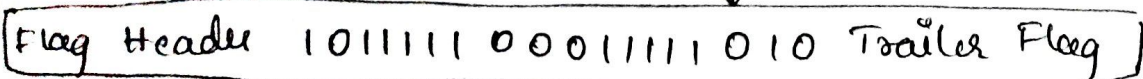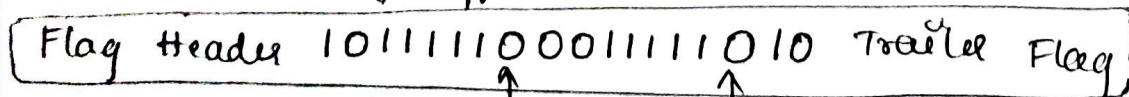
1011111 00111 1110

3M)

36 i> Physical address →

  Ex: 07:01:02:01:2C:4B - 6 byte
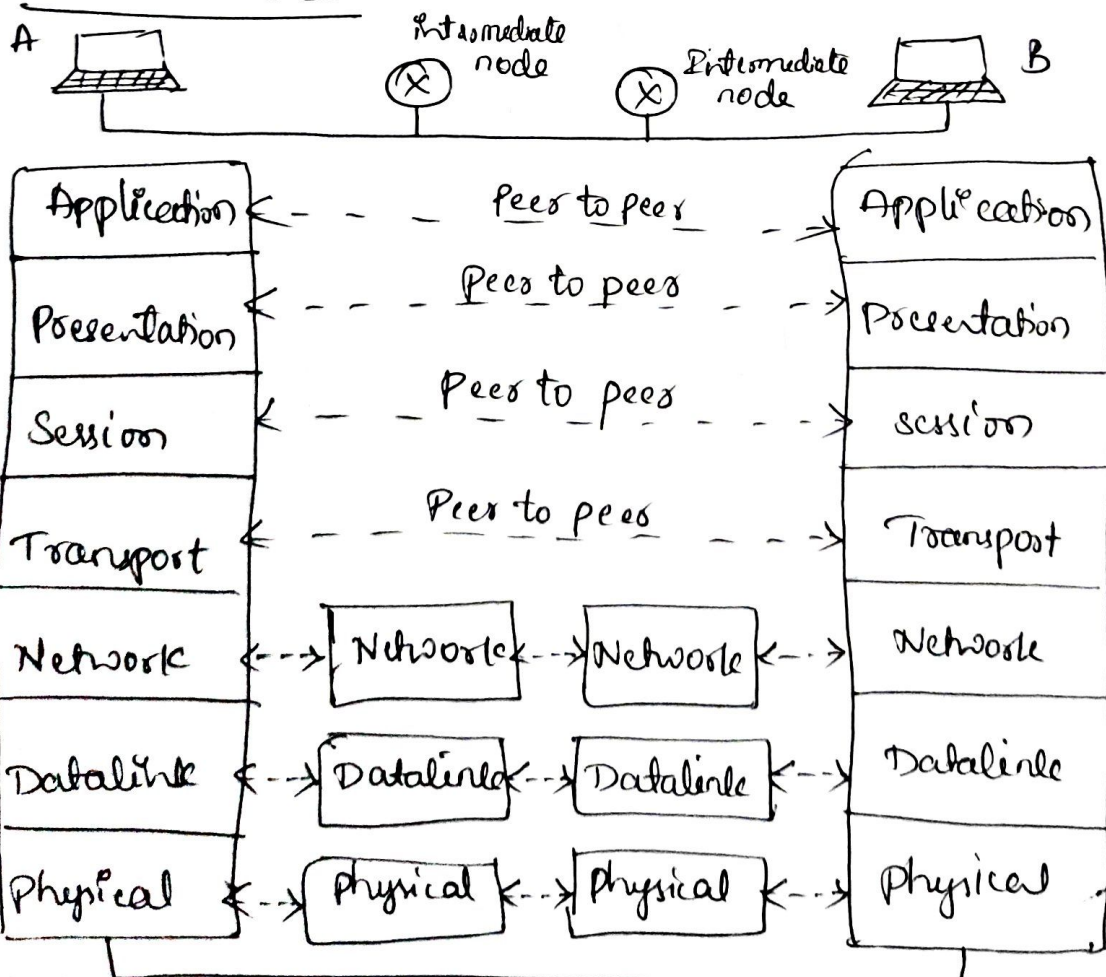
ii> Logical Address

iii< Port address

  Ex: 753 - 16 bit

iv< Specific address
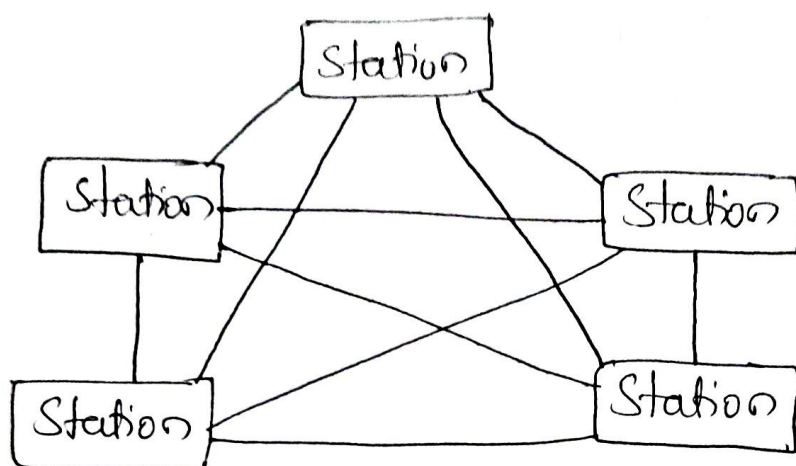
  Ex: www.dayanandasagar.edu
      email address

4M

4 OSI model

Application	←---- Peer to peer ----→	Application
Presentation	←---- Peer to peer ----→	Presentation
Session	←---- Peer to peer ----→	session
Transport	←---- Peer to peer ----→	Transport
Network	←--→ Network ←--→ Network ←--→	Network
Datalink	←--→ Datalink ←--→ Datalink ←--→	Datalink
Physical	←--→ Physical ←--→ Physical ←--→	Physical

Any Four functions of each

10M

5 a. Mesh Topology

Explanation — 3

Physical Links $= n(n-1) = 5(5-1) = 20$

duplex links $= \dfrac{n(n-1)}{2} = \dfrac{20}{2} = 10$ — 2

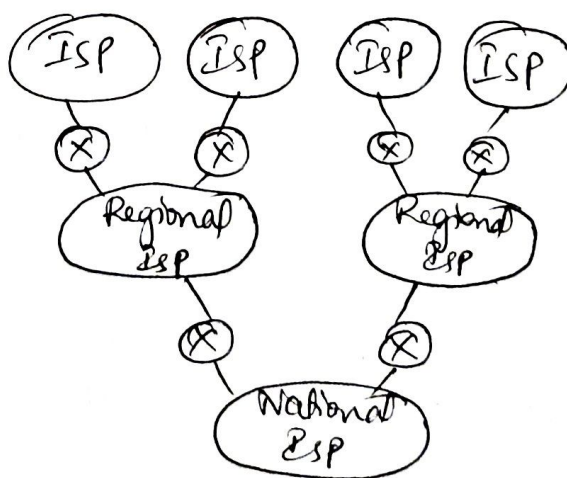I/O ports $= (n-1) = (5-1) = 4$
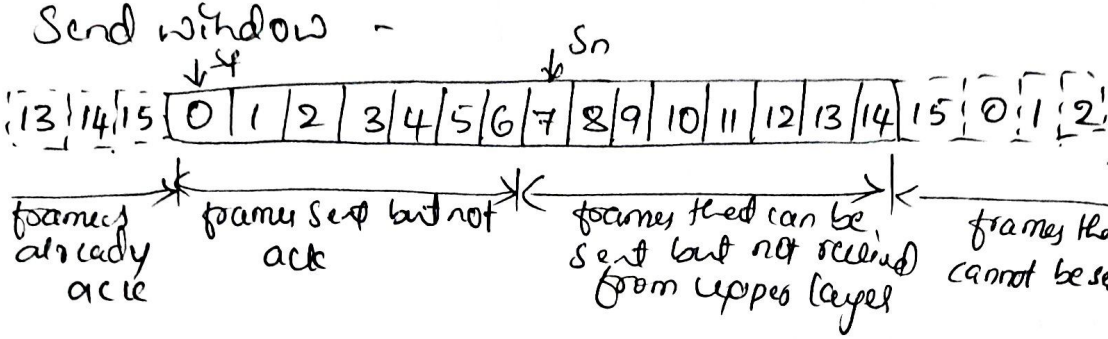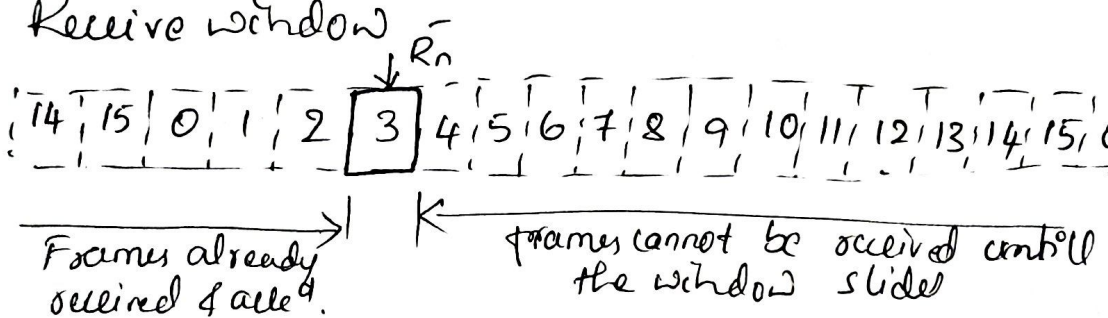
6. Role of ISPs

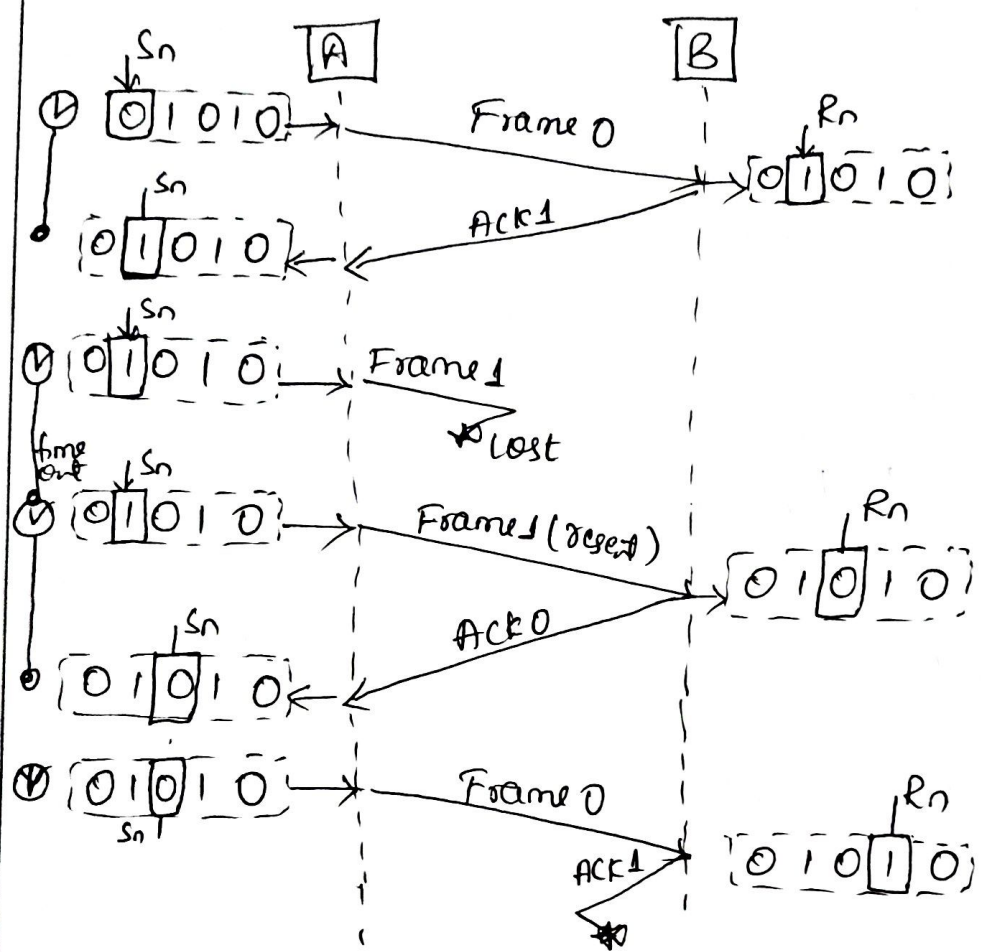International ISP
National ISP
Regional ISP
Local ISP.

— 5

with Explanation

6a. Go-Back N ARQ

Sliding window

Send window —

$$2$$

Receive window — R_n

$$2$$

Receiver site Algorithm

```
Rn = 0;
while (true)
{  WaitForEvent ( );
if (Event (Arrival Notification))
{ Receive (Frame);
   if (corrupted (Frame))
        Sleep ();
     if (SeqNo == Rn)
   { Deliver Data ();
        Rn = Rn + 1;
        SendACK (Rn);
   }
}}
```

$$2$$

Q. No.	Test question paper solutions with steps & answers	Marks Allocation

6b Seq no. & Ack no. are based on modulo-2

⎣→ Stop & wait ARQ.

— 4

7a.

Circuit switching	Packet switching
i. Requires a dedicated path before sending data	Doesnot require.
ii) It reserves the entire bandwidth inadvance	It doesnot
iii) Each packet follows the same route	can follow any route
iv) wastage of BW is more	less
v) more reliable	less reliable any ④

4M

Q. No.	Test question paper solutions with steps & answers	Marks Allocation

7b. Protocol with neither flow control nor error control — Simplest protocol.

Sender | Receiver

Network | Get data | Delivery data | Network
Data link | | | Data link
Physical | Send data | Receive frame | Physical

Data frames →

Event: Request from network layer

Repeat forever
Algo. for sender site

Repeat forever
Algo. for receiver site

Event: Notification from physical layer

With Explanation

— 5M