CS432 Important MCQ's for Final Term

- **Q.1 Make balance between desirable & ---------- features.**

  Incompatible

- **Q.2 Often conflicting technical----------.**

  Goals

- **Q.3 Reduces transmission time---------.**

  Costs

- **Q.4 At the expense of**

  CPU time

- **Q.5 Tradeoff between ---------- and communication.**

  Computation

- **Q.6 ---------- is at conflict with fairness.**

  Throughput

- **Q.7 ---------- can be implemented through weighted scheduling**

  Tradeoff

- **Q.8 PPS stands for ----------.**

  Protocol parameters

- **Q.9 frame size, retx timers are ----------**

  Protocol parameters

- **Q.10 Lost packets at --------.**

  networking devices

- **Q.11 access time for real and virtual memory ----------.**

  Memory performance

- **Q.12 ---------- system inefficiencies.**

  Operating system

- **Q.13 Application inefficiencies or -----**

  Bugs

- **Q.14 QOE stands for ---------.**

Quantify Quality of Experience

- **Q.15 QOS stands for ----------.**

  Quality of Services

- **Q.16 Real-time Transport Protocol (RTP) is a ----------.**

  Network Protocol

- **Q.17 Distribution time for the client-server architecture denoted by -------**

  D_{cs}

- **Q.18 Size of the file to be distributed (in bits) by ------**

  F

- **Q.19 Number of peers that want to obtain a copy of the file is ------**

  N

- ***Q.20* -------- denotes the download rate of the peer with the lowest download rate**

  d_{min}

- **Q.21 Server upload rate is ----------.**

  u_s

- **Q.22 HTTP is based on ----------.**

  sequenced messages

- **Q.23 ---------- delay from institutional router to server**

  Round trip

- **Q.24**

FTP Efficiency

Computational Efficiency of FTP

(COURTESY: ALEBRA TECHNOLOGIES INC.)

$$\frac{((TCPU) - (ICPU)) \times MIPS}{TRATE} = \text{Millions of Instructions per Megabyte}$$

TCPU = Total CPU seconds recorded during the period of file transfer

ICPU = Measured CPU seconds when machine is idle for the equivalent period

MIPS = Machine performance rating in Millions of Instructions Per second

TRATE = Transfer rate in megabytes per second

- **Q.25 IBC stands for----------.**

Incoming Bandwidth Consumption $q(x) = 1 - \frac{x}{IBCMax}$

- **Q.26 TT stands for----------.**

Traffic Tolerance $q(x) = \begin{cases} 1 & x \leq RTT_{avg} \\ -\frac{x}{RTT_{avg}} + 2 & RTT_{avg} \leq x \leq 2RTT_{avg} \\ 0 & x > 2RTT_{avg} \end{cases}$

- **Q.27 RTT stands for----------.**

Round Trip Time

- **Q.28 DNSR stands for----------.**

DNS Requests per Seconds

$$q(x) = \begin{cases} 1 - \frac{x}{2 \cdot DNSR_{avg}} & 0 \le x \le 2 \cdot DNSR_{avg} \\ 0 & x > 2 \cdot DNSR_{avg} \end{cases}$$

- **Q.29 RRQ stands for----------.**

Rate of Repeated Queries

$$q(x) = 1 - \frac{x}{R_{max}}$$

- **Q.30**

Peer to Peer Scalability

Performance

$$D_{P2P} = \max \left\{ \frac{F}{u_s}, \frac{F}{d_{min}}, \frac{NF}{u_s + \sum_{i=1}^{N} u_i} \right\}$$

- Distribution time for the P2P architecture denoted by D_{P2P}
- Size of the file to be distributed (in bits) by F
- Number of peers that want to obtain a copy of the file is N
- d_{min} denotes the download rate of the peer with the lowest download rate
- Upload capacity of the system as a whole = the upload rate of the server **plus** the upload rates of each of the individual peers, that is, $u_{total} = u_s + u_1 + \ldots + u_N$
- Server upload rate is u_s

- **Q.31 RFC 793 does not support persistence----------.**

HTTP1.0

- **Q.32 HTTP 1.1 is persistent by ----------.**

Default

- **Q.33 Browser uses statistical distributions generate requests to random ------.**

  web servers

- **Q. 34 ---------- determined by a list of predefined web sites to visit at specific times.**

  Browsing behavior

- **Q.35**

Simulate TCP Threading

INET Support for TCP

- RFC 793 - Transmission Control Protocol
- RFC 896 - Congestion Control in IP/TCP Internetworks
- RFC 1122 - Requirements for Internet Hosts -- Communication Layers
- RFC 1323 - TCP Extensions for High Performance
- RFC 2018 - TCP Selective Acknowledgment Options
- RFC 2581 - TCP Congestion Control
- RFC 2883 - An Extension to the Selective Acknowledgement (SACK) Option for TCP

- **Q.36 Checksum is ---------- both at the sender and receiver.**

  “checking the sum”

- **Q.37 Divide the *M*-bit data into *N*-bit chunks---------.**

  Total chunks *M/N*

- **Q.38 Checksum is also---------.**

  ***N*-bit**

- **Q.39 Total sums ----------.**

M/N + 1

- **Q.40**

Checksum

Undetected Errors (1 of 2)

- Reordering of 2 byte words, i.e. 01 02 03 04 changes to 03 04 01 02
- Inserting zero-valued bytes i.e. 01 02 03 04 changes to 01 02 00 00 03 04

- **Q.41**

Undetected Errors (2 of 2)

- Deleting zero-valued bytes i.e. 01 02 00 00 03 04 changes to 01 02 03 04
- Replacing a string of sixteen 0's with 1's or 1' with 0's
- Multiple errors which sum to zero, i.e. 01 02 03 04 changes to 01 03 03 03

- **Q.42 Wheat and rice analogy!**

  Go back N is wheat

Fresher is better

- **Q.43 Wheat and rice analogy!**

  Selective repeat is wheat
  Older is better

- **Q.44 ---------- is the number of windows that cover the object**

  K

- **Q.45 Trade-offs between open-cost and number of ---------.**

  Misses

- **Q.46 Congestion Control Principles ----------.**

  RFC 2914

- **Q.47 ----------buffer overflow at routers.**

  Lost packets

- **Q.48 ---------- Queuing in router buffers.**

  Long delays

- **Q.49 Too many sources sending too much data too fast for network to----------.**

  handle

- **Q.50 ---------- from end-system observed loss, delay.**

  Congestion inferred

- **Q.51 ABR stands for---------.**

  Available Bit Rate

- **Q.52 ---------- a service used in ATM networks.**

  Available Bit Rate (ABR)

- **Q.53 Source and destination don't need to be ----------.**

  Synchronized

- **Q.54 -------- does not guarantee against delay or data loss.**

  ABR

- **Q.55 Allow network to allocate available bandwidth fairly over present --------.**

  ABR sources

- **Q.56 ---------- of the traffic to help manage and control the flow of traffic onto and through the network.**

  Buffering

- **Q.57 ---------- means buffer that is constantly flowing.**

  “Leaky”

- **Q.58 Many traffic sources can be defined by token---------.**

  bucket scheme

- **Q.59 Provides concise description of load imposed by--------.**

  flow

- **Q.60 Easy to determine resource ----------.**

  Requirements

- **Q.62 To transmit a packet through router, one token must be ----------.**

  Removed

- **Q.63 If token bucket is ---------- packet is queued waiting for next token.**

  Empty

- **Q.64 During any time period *T*, the amount of data sent cannot exceed**

  B + R*T

- **Q.65 Broadband IP packet networks are ---------- all-purpose communications platforms.**

  Multiservice

- **Q.66 QoS a non-issue for ---------- networks.**

Circuit-switched

- **Q.67 ATM and Frame Relay provide ---------.**

  L2 QoS

- **Q.68 IP QoS is concerned with end-to-end --------.**

  Internetwork

- **Q.69 TOS stands for -------.**

  Type of Service

- **Q.70 Lower precedence dropped for higher precedence in ----------.**

  Congestion

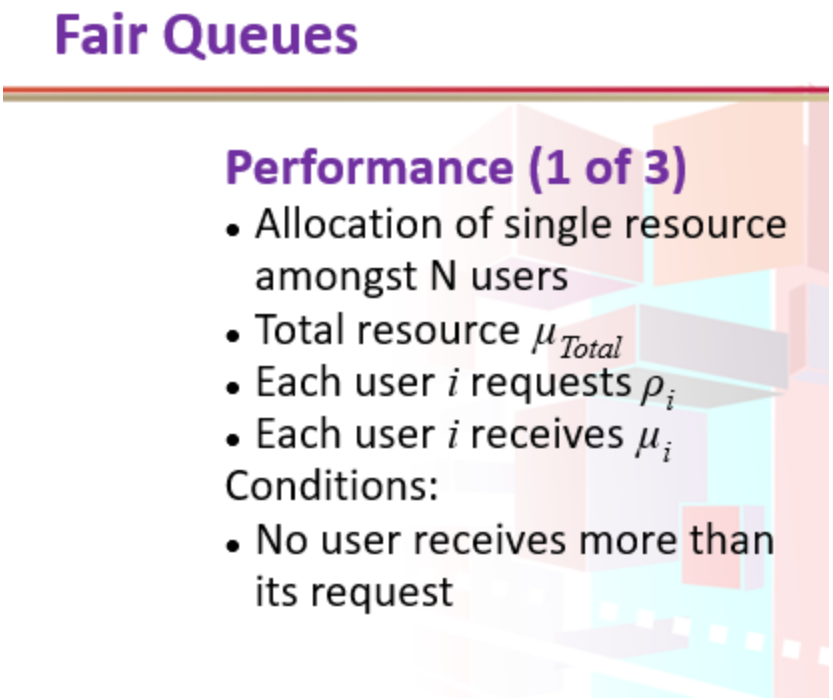
- **Q.71 Simulate ---------- of ATM or frame relay on L3.**

  “virtual circuit”

- **Q.72 Queues are then serviced one packet at a time in --------- order.**

  round-robin

- **Q.73**



- **Q.74 PQ stands for ----------.**

  Priority Queues

- **Q.75 Within each of the priority queues, packets are scheduled in ----------.**

  FIFO order

- **Q.76 It is a scenario where the ------- dominates transmission time**

  propagation delay

- **Q.77 K is the number of windows that cover the ------- .**

  Object

- **Q.78 Server starts with --------- window of one segment**

  Congestion

- **Q.79 Congestion window doubles every -------.**

  RTT

- **Q.80 Long sessions with larger windows take precedence in ------ .**

  Intermediate devices

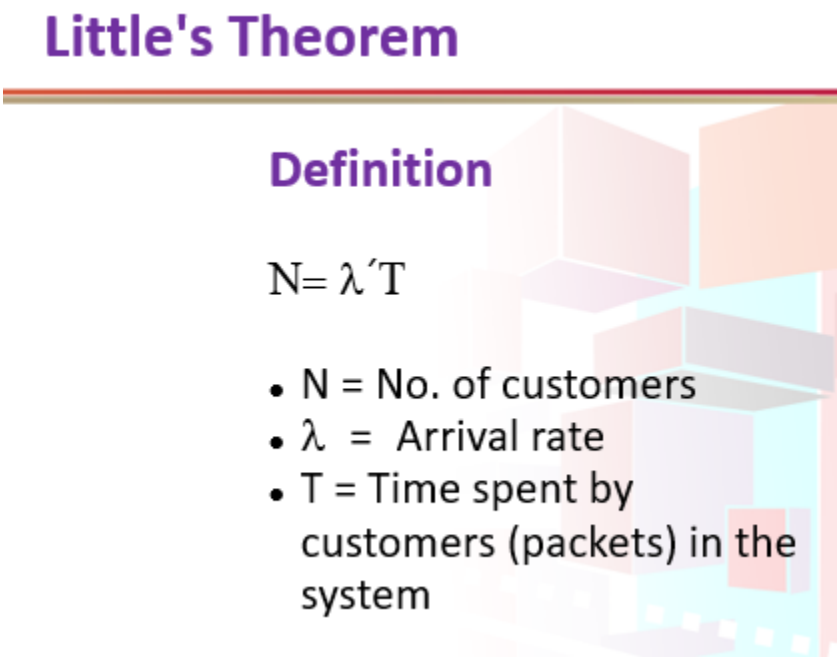
- **Q.81 --------- window for every VC & pair of adjacent nodes along path of VC.**

  A separate

- **Q.82 ---------- implementation on long and short propagation delays ensures fairness**

  Round Robin

- **Q.83**



- **Q.84 Large N associated with long customer ------ & vice versa.**

  delays (T)

- **Q.85 The time average of a function is found by evaluating a measure space with the average taken over a time -------.**

  ΔT

- **Q.86 $P_n(t)$ = Probability of n customers in the system at ----------.**

  time t

- **Q.87 Defined as the number that measures the ------ of a given set of numbers.**

  Central tendency

- **Q.88 Merges ------- & identically distributed arrival processes.**

***n* independent**

- **Q.89 Each process has arrival rate ---------**

  Lambda/n

- **Q.90 No. of arrivals occurring in ---------- time intervals are independent.**

  Disjoint

- **Q.91 The set of activities performed at the receiving device is called -------.**

  Service

- **Q.92 Customer (packet) service times have an exponential distribution with parameter.**

  μ

- **Q.93 ------- is also called service rate.**

  μ

- **Q.94 Service times are mutually ----------.**

  Independent

- **Q.95 Arriving customer finds the system in a ------ state.**

  "typical"

- **Q.96 Future arrivals are ------ of the current number in the system.**

  Independent

- **Q.97 -------- identifies the operation in the wake of TimeOut.**

  RFC 2581

- **Q.98 Bring window down to --------.**

  1 MSS

- **Q.99 The network layer is --------.**

Workhorse

- **Q.100 Source-to-destination paths behave much like ------**

  telephone circuit

- **Q.101 Every router on source-dest path maintains ------ for each passing connection.**

  “state”

- **Q.102 Resources (bandwidth, buffers) allocated to ------.**

  VC

- **Q.103 Two packets of the same user pair can travel along --------.**

  different routes

- **Q.104 Forwarding datagrams from incoming to -------.**

  outgoing link

- **Q.105 *forwarding tables computed, pushed to ---------.***

  input ports

- **Q.106 Complete input port processing at ----------.**

  ‘line speed’

- **Q.107 Fabric slower than ------- ports combined.**

  Input

- **Q.108 ---------- required when datagrams arrive from fabric faster than the transmission rate If R_{switch} is *N* times faster than R_{line}.**

  Buffering

- **Q.109 -------- chooses among queued datagrams for transmission.**

  Scheduling discipline

- **Q.110 ------ average buffering equal to “typical” RTT (say 250 msec) times link capacity C.**

RFC 3439

- **Q.111 -------- at front of queue prevents others in queue from moving forward.**

  Queued datagram

- **Q.112 If buffers constantly full, network is -------.**

  Congested

- **Q.113 Tail drop distributes ---------- space unfairly among traffic flows.**

  Buffer

- **Q.114 AQM stands for ----------.**

  Active Queue Management

- **Q.115 AQM is intelligent drop of network packets inside a buffer of----------.**

  NIC

- **Q.116 Monitor avg queue size & drop packets based on ------.**

  Probabilities

- **Q.117 If buffer ------ all incoming packets accepted.**

  Empty

- **Q.118 When buffer ------ *P* = 1 all incoming packets dropped.**

  Full

- **Q.119 RED stands for ----------.**

  Random Early Detection

- **Q.120 As avg queue length increases, ------- packets are dropped.**

  “In”

- **Q.121 Routing algorithm determines end-end-path ---------.**

  through network

- **Q.122 All routers have complete topology, --------- information.**

  link cost

- **Q.123 Each node independently calculates best ------ from it to every possible destination in the network**

  Path

- **Q.124 The collection of best paths will then form the node's ---------.**

  routing tables

- **Q.125 Full-mesh----------**

  n(n+1)/2

- **Q.126 Omega Notation----------.**

  $O(n^2)$

- **Q.127 Router knows physically-connected --------- + link costs to neighbors.**

  Neighbors

- **Q.128 Iterative is a process of ----------.**

  Computation

- **Q.129 From time-to-time, each node sends its own distance vector estimate to -----.**

  Neighbors

- **Q.130 DV stands for ----------.**

  Distance Vector

- **Q.131 ------- convergence time varies due to potential routing loops**

  Speed

- **Q.132 If DV changes, notify ---------.**

  Neighbours

- **Q.133 Bad news travels very slow, especially if the cost change is --------.**

  Large
- **Q.134 Ping-pong effect due to ------- is undesirable.**

  Looping

- **Q.135 AS stands for ----------.**

  Autonomous System
- **Q.136 Given a network and a set of demands, there may be many -------- routes.**

  Feasible

- **Q.137 ---------- routing is the one that maximizes the smallest spare capacity .**

  Optimal

- **Q.138 Any chosen route from a router *a* to another router *b* can possibly ------- the capacity available for demands between other node pairs.**

  Reduce

- **Q.139 QoS routing is to find a ------ route for the session**

  “good”

- **Q.140 WFQ stands for --------.**

  Weighted Fair Queuing

- **Q.141 WFQ supports --------- of BW for variable-length packets.**

  fair distribution

- **Q.142 RRA stands for ---------.**

  Route and Rate Allocation

- **Q.143 Perform a logical AND of netmask and ------- bit destination IP address in the packet.**

  32-bit

- **Q.144 LPM stands for ------.**

  Longest Prefix Match

- **Q.145 ARPANET used -------- Numbers.**

  Sequence

- **Q.146 With the indicated link costs, use --------- shortest-path algorithm to compute the shortest path from x to all network nodes.**

  Dijkstra's

- **Q.147 Each class of traffic needs a minimum bandwidth path. To avoid ----- by, QoS routing modifies the routing algorithms.**

  Oscillations

- **Q.148 Cisco's EIGRP is a ---- routing protocol between distance vector and link state routing protocols**

  Hybrid

- **Q.149 EIGRP offers routing based on -------.**

  composite metric

- **Q.150 Cisco released EIGRP specs as IETF's RFC draft in --------.**

  2013

- **Q.151 EIGRP employs ----------.**

  Diffusing Update Algorithm (DUAL)

- **Q.152 DUAL stands for ----------.**

  Diffusing Update Algorithm

- **Q.153 ANSA stands for --------.**

@Brno University of Technology
Czech Republic

- **Automated Network Simulation and Analysis**

- **Q.154 Virtual router has its own IP and -------.**

  MAC addresses

- **Q.155 Allows PC to keep communicating on an internetwork even if its default gateway becomes ----------.**

  Unavailable

- **Q.156 Each PC is configured to use the ------ as its default gateway.**

  virtual router

- **Q.157 When a PC broadcasts an ARP frame to find its default gateway, the active ------- router responds with virtual router's MAC address.**

  HSRP

- **Q.158 Active router sends out ------- periodically.**

  HELLO

- **Q.159 If the active router goes offline, a standby router takes --------.**

  Over

- **Q.160 HSRP also works for-------.**

  Proxy ARP

- **Q.161 HSRP stands for ----------.**

  Hot Standby routing protocol

- **Q.162 -------- provides FIFO by default.**

  Cqueue

- **Q.163 DLL stands for ----------.**

  Data Link Layer

- **Q.164 --------- addresses Internet checksum algorithm.**

  RFC 1071

- **Q.165 1s complement of all sums of k-bit integers forms the Internet checksum bit for TCP/UDP.**

  16-bit

- **Q.166 Transport layer is typically implemented in ---------.**

  Software

- **Q.167 DLL implemented in-------.**

  NIC

- **Q.168 FEC stands for ----------.**

  Forward error correction

- **Q.169 CRC more powerful ----------.**

  error-detection code

- **Q.170 Checksum becomes weak**

  Limited illegal rep

- **Q.171 CRC can detect all burst errors less than ---------.**

  r+1 bits

- **Q.172 Widely used in practice**

  Ethernet

  802.11 WiFi

  ATM

- **Q.173 Broadcast channel of rate R ---------.**

bps

- **Q.174 When one node wants to transmit, it can send at rate ----------.**

  R

- **Q.175 TDM stands for ----------.**

  Time Division Multiplexing

- **Q.176 In TDM Unused slots go --------.**

  Idle

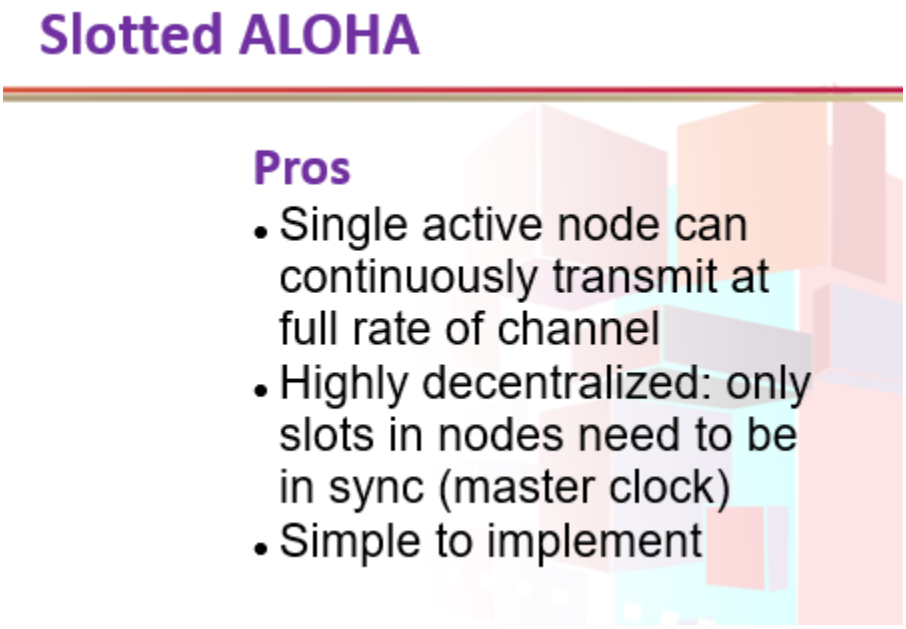
- **Q.177 FDM stands for ----------.**

  Frequency Division Multiplexing

- **Q.178 In FDM Unused transmission time in frequency bands go----------.**

  Idle

- **Q.179**



- **Q.180**

Slotted ALOHA

Cons

- Collisions, wasting slots idle slots
- Nodes may be not able to detect collision in time
- Clock synchronization needed

- **Q.181 Ethernet recommends ------- bytes as Max.**

  1500 bytes

- **Q.182 --------- by shortening packets to take advantage of pipelining.**

  Decreasing delay

- **Q.183**

Fixed Frame Size Computation

Fixed Frame (cell) networks

- ATM recommends 53 bytes (424 bits) as Max
  - 48 bytes payload
  - 5 bytes header
- Emulates circuit-like behaviour
  - Good for interactive
  - Bad for file transfer

- **Q.184 MPLS stands for ----------.**

  Multi Protocol Label Switching

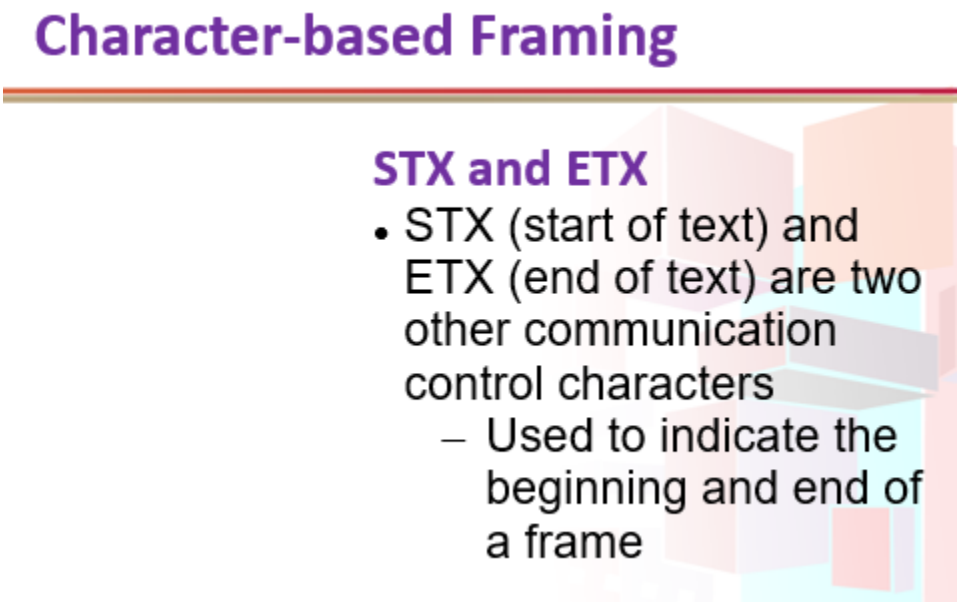
- **Q.185 TOR stands for ----------.**

  Top of Rack

- **Q.186 Character codes such as ASCII provide binary --------**

  Representations

- **Q.187**



- **Q.188 The transparent mode uses a special control character called**

  DLE (data link escape)

- **Q.189**

Bit-oriented Framing

Bit-oriented Protocols

- Bit-oriented synchronous protocol pass variable-length frames
  - Image/voice data
  - Web data
- Dedicated or switched Simplex, half and full duplex

- **Q.190**

Underlying Assumptions (1 of 2)

- Multihop wireless network
- Topology has already been discovered
- Directed graph G(N , E)
  - N is the set of nodes
  - E is the set of directed edges

- **Q.191 Piconet is a centralized ---- system.**

  TDM

- **Q.192 ------- has no buffer to store data arriving in a slot but cannot be served in that slot.**

  Multiplexer

- **Q.193 Performance depends only on --------- of arrival process.**

  marginal distribution

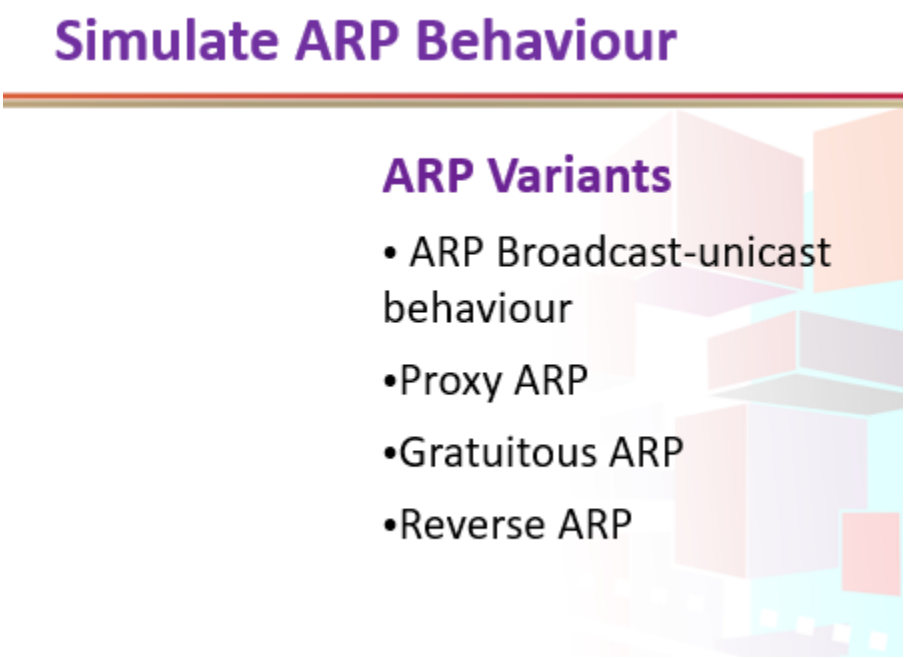
- **Q.194 Packet switching is unachievable with -------**

  zero buffering

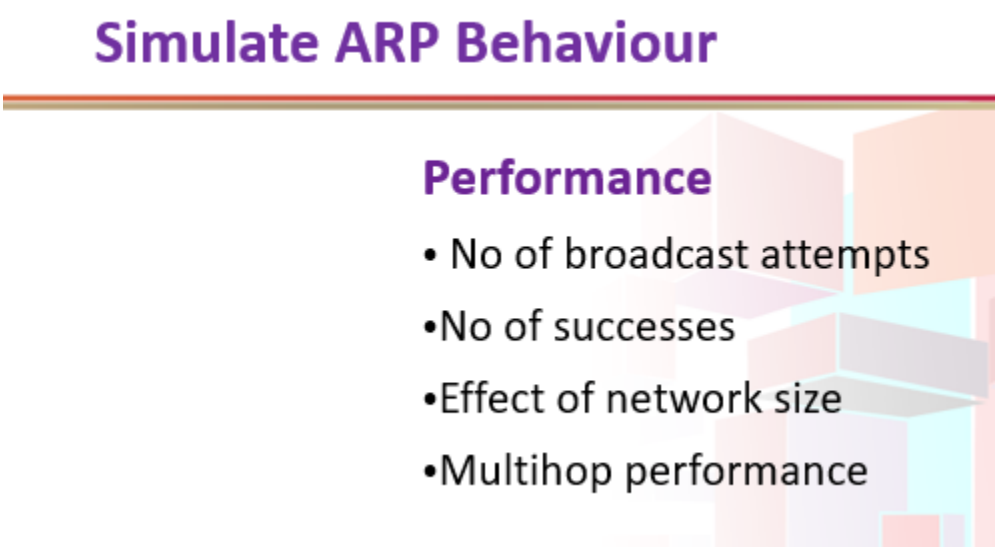
- **Q.195 Connection admission control with burst ----------.**

  scale buffering

- **Q.196**



- **Q.197**



- **Q.198**

Simulate Switching vs Routing

Why compare!

- Routing is inter-network phenomenon
  - It is pre-forwarding
- Switching is intra-network
  - It is forwarding
- Apparently no comparison
- Comparison at the device level
  - Router vs switch

- **Q.199**

Simulate Switching vs Routing

Router vs Switch

- Routing process
  - Forwarding process
- Switching process
  - Port-based MAC learning
- ID-based behaviour
  - Unicast
  - Broadcast

- **Q.200**

Basis of Comparison

- Cost
  - All router
  - All switch
  - Hybrid
- Isolation
  - Traffic
  - Domain
- Speed
- Complexity

- **Q.201**

Parameters

- Output queue lengths
- Output queue length distribution
- Output queue length Vs time plots
- Number of packets generated and received by hosts
- Packet size distribution
- Hop count distribution
- End to end delay

- **Q.202**

Broadband Access

- Broadband is longhaul (backhaul)
  - Shared medium
  - Long distance
- Vs access side (baseband)
- Lastmile (first mile)
  - User-connecting technologies

- **Q.203**

WiFi

Wireless Fidelity Network

- Wireless LAN offers mobility and increased flexibility
  - Portable computers coming to a meeting forms a wireless LAN
  - More economical
- 802.11b uses a HF band
  - Up to 11 Mbps

- **Q.204**

RTS CTS Mechanism

- Sender sends request to send
- Receiver acknowledges as clear
  - Overhearing neighborhood cautioned

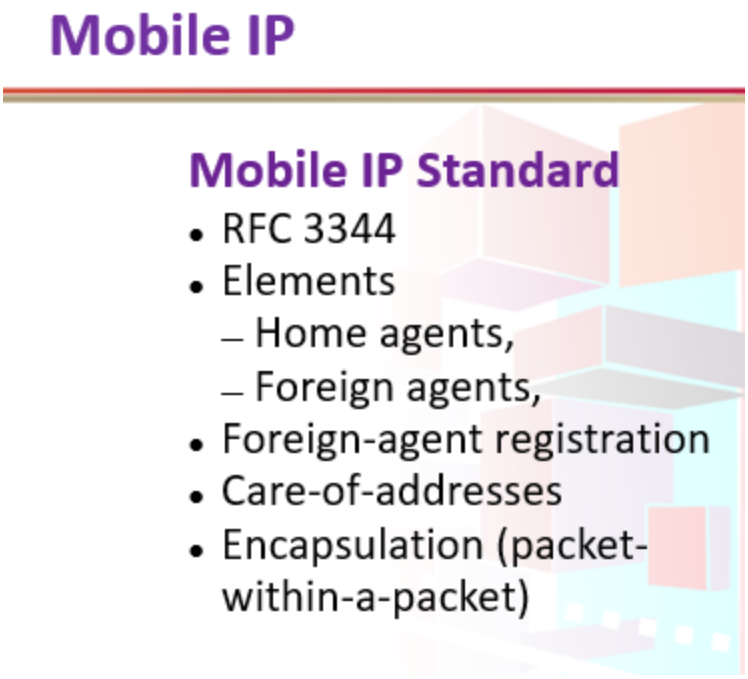
- **Q.205**

WiFi Operations

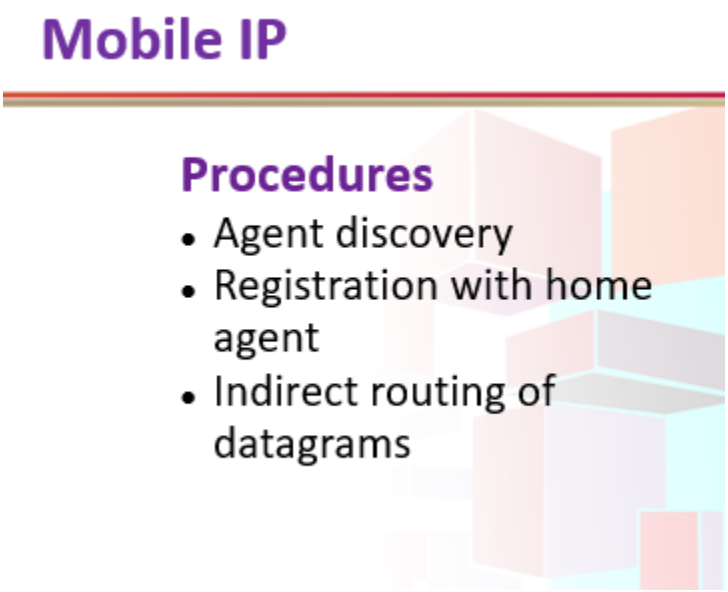
Operations

- Synchronization
- Authentication
- Association
- Data Transmission
- Handoff
- Power management

- **Q.206**



- **Q.207**



- **Q.208 CATV stands for ----------.**
  Cable TV

- **Q.209 HFC stands for ----------.**

  Hybrid Fiber Coaxial

- **Q.210**

Packet Cable Networks

Architecture

- Tree topology
- One-way broadcast
- Headend and cable modems

Headend

- Operational center of a CATV cable access network
- Connected to many distribution nodes via trunk cables
  - Coax cable or fiber

- **Q.211**

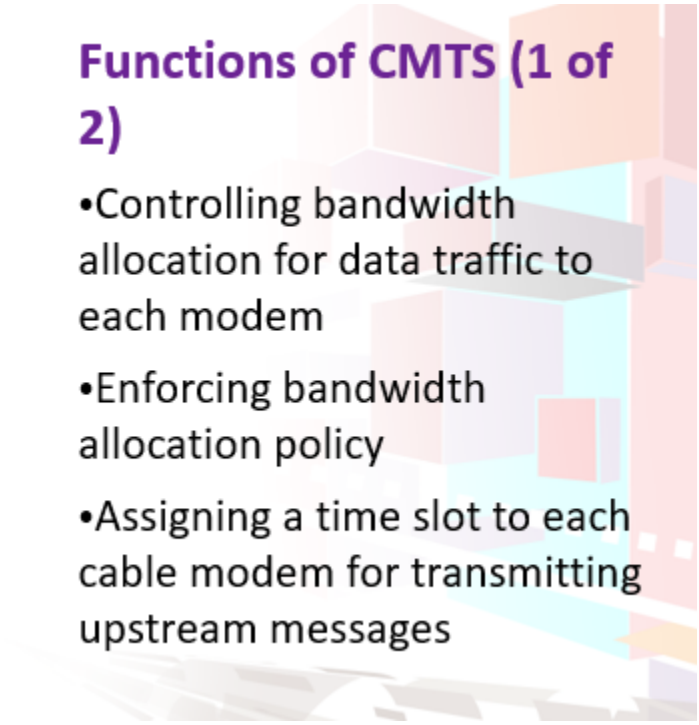
Packet Cable Networks

Functions of Headend

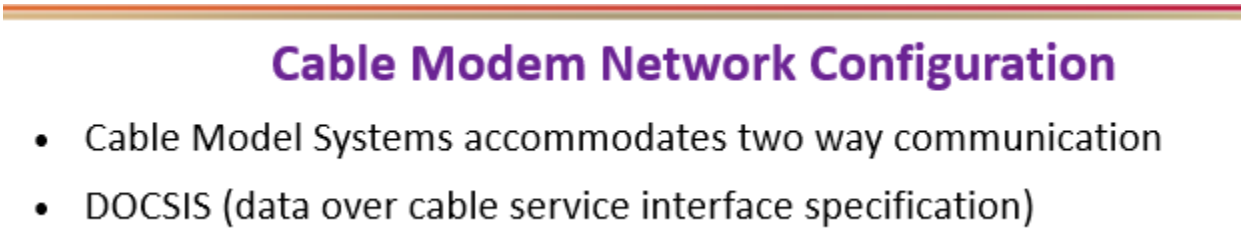
- Receiving broadcast signals from satellite or microwave dishes
- Mixing local or recorded TV programming
- Assigning channel frequencies to all signals destined for cable distribution

- **Q.212 CMTS stands for ----------.**
  Cable modem termination system

- **Q.213**



- **Q.214**



- **Q.215 ----------** node that receives a message relays it to all of its neighbors except from which it received.

  Indefinite Flood

- **Q.216** Another view of ---------- is to say that a subtree of height k is compressed into one level.

  level compression

- **Q.217** ARPANET Solution To ensure that each message is ----- by each node only a finite number of times.

  Transmitted

- **Q.218** Flooding w/o Periodic updates needed because if some updates are sent but not--------

Incorporated

- **Q.219** Need-based Updates ----- seq no allowed only when node is recovering from a crash.

  Zero

- **Q.220** Redundancy of Periodicity ------- updates needed because if some updates are sent but not incorporated.

  Periodic

- **Q.221 ----------** Probability of error on reasonable-sized.

  Transmission Errors

- **Q.222** Frame size Using ------- frame is useful for single user on WAN links.

  Large

- **Q.223** Wireshark Presents output in Binary----------.

  Hex and ASCII

- **Q.224** Wireshark Saves files as--------.

  .pcap

- **Q,225** Wireshark a packet capturing and ----------

  analysis tool

- **Q.226** Wireshark Work in --------- mode.

  Promiscuous

- **Q.227** Switching is ---------- phenomena.

  intra-network

- Q.228 Switching is ----------.

  Forwarding

- Q.229 Routing is ----------.

  Pre-forwarding

- Q.230 Routing process is ---------- process.

  Forwarding

- Q.231 Switching process ------ based MAC learning.

  Port

- Q.232 In Slotted ALOHA If 2 or more nodes transmit in slot, all nodes detect -----.

  Collision

- Q.233 Min Frame Size Ethernet recommends ------.

  64 Bytes

- Q.234 Min Frame Size If the data portion of a frame ----------.

  < 46 bytes

- Q.235 Stray bits and pieces of frames appear on the -------- all the time.

  Cable

- Q.236 Collision detection can take as long as ----------.

  2 τ

- Q.237 Transceiver needs enough ------ to hold an entire frame.

  RAM

- Q.238 Ethernet recommends ----- bytes as Max.

  1500

- Q.239 This limit was chosen arbitrarily for DIX standard This limit was chosen arbitrarily for-----

  DIX standard

- Q.240 Ethernet at 10 Mbps, a bit takes --------.

  100 nsec

- Q.241 Pipelining Scenario -------- delay by shortening packets to take advantage of pipelining.

  Decreasing

- Q.242 In the process of Pipelining, Former packets are leaving or may have already left the ----------Queue.

  Output

- Q.243 In the process of Pipelining, While the later packets arrive on the ---- queue of the node.

  Input

- Q.244 Pipelining Scenario When each packet is split in two, a pipe lining effect--------.

  Occurs

- Q.245 Provides designation, routing, & switching of traffic flows through ----------.

  MPLS domain

- Q.246 Each application is associated with a publicly ------ IP address.

  Visible

- Q.247 Distributes and balances requests to hosts also called ----------.

  L4 switch (with NAT)

- Q.248 Each request travels all along the way to ----------.

  Server

- Q.249 Along the route that starts from an ingress node and ends at an ------- node of an MPLS network.

  Egress

- Q.250 Google, Microsoft, Facebook, and Amazon have built--------- data centers.

  Massive

- Q.251 ---------- support many distinct cloud applications.

  Concurrently

- Q.252 ---------- or delays waiting for time outs, occur in go back N due to following.

  Retransmissions

- Q.253 ---------- in the feedback than in the forward directions.

  Longer frames

- Q.254
  Probability that a frame is not acked by the time the window is exhausted is given by

$$p = (1 + n)2^{-n}$$

- Q.255 The transparent mode uses a special control character called ---------

  DLE (data link escape)

- Q.256 Receiver does not know where to look for ----------.

  subsequent frames

- **Q,258** An incorrect frame is accepted with probability

  2^{-L}

- **Q.259** ---------- is the length of the Length field

  L

- **Q.260** DECNET uses a fixed-length header for ----------.

  each frame

- **Q.261** Header has its own ----------.

  CRC

- **Q.262** A similar approach is to put the length field of one frame into the -------- of preceding frame.

Trailer

- **Q.263** The transmission range in the network is ----------.

  Large

- **Q.264** With smaller transmission ranges, many transmissions can occur ----------.

  Simultaneously

- **Q.265** Locations follow a ---------- distribution.

  Spatial

- **Q.266** ------ at receiver removes inserted 0s by looking for seq of 5 1s followed by stuffed 0s

  DLL

- **Q.267** When errors ---------- the framing information on the communication link

  Corrupt

- **Q.268** Bits before the perceived flag are interpreted by the receiver as a ----------.

  CRC

- **Q.268** An error in this length field causes receiver to look for the CRC in the ----------.

  wrong place

- **Q.269** Basic problem in framing is to inform the receiving DLC where each idle fill ----- ends

  String

- Q.270 Include length field in the ----------.

  frame header

- Q.271 the length is represented by ordinary ---------- numbers.

  Binary

- Q.271 Network Capacity sum of all ---------- connections.

  Active

- Q.272 Protocol design determines the ----------.

  Effectiveness

- Q.273 Receiver in each edge can decode the transmission from the ------- node of the edge.

  tail (TX)

- Q.274 Ethernet recommends minimum frame size up to ----------.

  64 bytes

- Q.276 Master controls the ----------.

  Clock

- Q.277 Determining which device gets to ---------- in which time slot.

  Communicate

- Q.278 Multiplexer has no---------- to store data arriving in a slot but cannot be served in that slot

  Buffer

- Q.279 Performance depends only on ---------- of arrival process.

  marginal distribution

- **Q.280** Marginal Buffering at Every Hop Doesn't depend on ---------- b/w arrivals in slots

  Correlations

- **Q.281** Simple Analogy The basic idea of ---------- multiplexing/routing.

  “bufferless”

- Q.282 Packet switching is ---------- with zero buffering.

  Unachievable

- Q.283 Arbitrary Buffering Connection admission control with ---------- scale buffering.

  Burst

- Q.284 An arriving stream connection may or may not be admitted, if traffic is already being ---------- by the link

  Carried

- **Q.285** Traffic from a source may be well characterized at the point where it ------- the network.

  Enters

- **Q.286** After multiplexing at the first hop, the flows become ----------.

  Dependent

- **Q.287** When channel decides (based on RN) that an error occurred during ---------- of packet.

  Transmission

- **Q.288** Sets an error flag in the ---------- object.

  Packet

- **Q.289** The receiver module is expected to check the ----------,

  Flag

- **Q.290** Default BER and PER are ----------.

  Zero

- **Q.291** ARP has to learn the ---------- for the default router

  MAC address

- **Q.292** Client computer opens ---------- session with server.

  TCP

- **Q.293** The data pattern must be known so, that a ---------- model can be designed

  corresponding error

- **Q.294** Need to hardcode the pattern that fails ----------.

  parity scheme

- **Q.295** Sets up a flow between two hosts with ----------.

  TCP Sack

- **Q.296 Wireshark** outputs files in multiple formats, Including the ----------.

  pcap format

- **Q.297** Receiver acknowledges as clear overhearing neighborhood----------.

  Cautioned

- **Q.298** Mobile IP Standard ----------.

  RFC 3344

- **Q.299** Packet broadband cable network built on existing broadcast ---------- networks.

  cable TV (CATV)

- Q.300 Connected to many distribution nodes via trunk cables Coax cable or----------

  Fiber

- Q.301 Operational center of a --------- cable access network.

  CATV

- Q.302 Receiving broadcast signals from satellite or ---------- dishes.

  Microwave

- Q.303 Assigning channel frequencies to all signals destined for ----------.

  cable distribution

- Q.304 Controlling bandwidth allocation for data traffic to each ----------.

  Modem

- Q.305 Assigning a time slot to each cable modem for transmitting --------- messages.

  Upstream

- Q.306 Cable Model Systems accommodates ------ way communication

  Two

- **Q.307** DOCSIS stands for ----------.

  data over cable service interface specification

- **Q.308** Originally designed to provide wireless last mile/first mile deployment in a --------.

  MAN

- **Q.309** Also end-user access an alternative to ---------- family.

  802.11

- **Q.310** Worldwide Interoperability for ----------.

  Microwave Access (WiMAX)

- **Q.311** Many basic ideas of 802.16 borrowed from ---------- applied to the wireless setting.

  DOCSIS/HFC

- **Q.312** Line-of-Sight(LOS) and ---------- of Ghz spectrum.

  Tens

- **Q.313** A family of technologies for ---------- last-mile solution using existing copper wires.

  Broadband

- **Q.314** Enterprise CPE includes an ----------.

  integrated access device (IAD)

- **Q.315 IAD stands for ----------.**

  integrated access device

- **Q.316** Network model is more scalable than the number of nodes and ---------- in the topology.

  Servers

- **Q.317 ----------** Community value of a network grows as the square of the number of its users.

  Metcalfe's Law

- **Q.318** Often cited as an explanation for the ---------- of the Internet.

  rapid growth

- **Q,319** Unplanned expansion causes ----------.

  performance degradation

- **Q.320** Scalability is expressed as a ---------- of factors in the network.

  Function

- **Q.321** Execution time tends to vary with ----------.

  problem size

- **Q.322** Execution time increases with ----------.

  increasing factors

- **Q.323 Execution time** decreases with increasing ----------.

  other factors

- **Q.324** Efficiency decreases with ----------.

  increasing factors

- **Q.325 Efficiency** increases with increasing ----------.

  other factors

- **Q.326** Scalability refers to the---------- to grow (or add).

  Ability

- **Q.327** Usability (Ub) is expressed as a ---------- of network devices.

  Function

- **Q.328** Usability (Ub) is defined as the ease of use with which network users can access the network and the ----------.

  Services

- **Q.329** Some design decisions have a negative affect on ----------.

  Usability

- **Q.330** Segments should be represented ----------.

  Linearly

- **Q.331** Facts represented as---------- facts are the basis of science.

  Quantitative

- **Q.332** This criteria affects the design choices made for the ----------.

  network model

- **Q.333 GTSs stands for ----------.**

  Guaranteed Time Slots

- **Q.334 LQI stands for ----------.**

  Link Quality Indication

- **Q.335 ED stands for ----------.**

  Energy Detection

- **Q.336**

  IEEE802.15.4
  Features
  - Channels
    - 16 channels in 2450 MHz band
    - 10 channels in 915 MHz
    - 1 channel in 868 MHz
  - Over-the-air rates of 250,40& 20 kb/s
  - Addressing
  - 16 bit short
  - 64 bit extended

- **Q.337** IEEE 802.11: an ----------

  overkill technology

- **Q.338** IEEE 802.15.4 a new MAC for ----------.

LR-WPAN

- **Q.339** LR-WPANs stands for ----------.

  Low-rate low-power wireless personal area networks