COMPUTER NETWORK

1. A company has a Class-C address of 204.204.204.0. It wishes to have three subnets, one with 100 hosts and two with 50 hosts each. Which one of the following options represent a feasible set of subnet mask/ subnet address pair?
   A. 255.255.255.192/ 204.204.204.128
      255.255.255.128/ 204.204.204.0
      255.255.255.128/ 204.204.204.64
   B. 255.255.255.192/ 204.204.204.0
      255.255.255.128/ 204.204.204.192
      255.255.255.128/ 204.204.204.64
   C. 255.255.255.128/ 204.204.204.128
      255.255.255.192/ 204.204.204.192
      255.255.255.192/ 204.204.204.224
   D. 255.255.255.128/ 204.204.204.128
      255.255.255.192/ 204.204.204.64
      255.255.255.192/ 204.204.204.0

   Solution: Option D

2. Two computers A and B are configured as follows. A has IP address 203.197.17.157 and netmask 255.255.128.0. B has IP address 203.192.192.201 and netmask 255.255.192.0. Which one of the following statements is true?
   A. A and B both assume they are on same network.
   B. B assumes A is on same network but A assumes B is on a different network.
   C. A assumes B is on same network, B assumes A is on a different network.
   D. A and B both assume they are on different networks.

   Solution: Option D

3. A router uses the following routing table:

Destination	Mask	Interface
144.72.0.0	255.255.0.0	Eth0
144.72.64.0	255.255.224.0	Eth1
144.72.68.0	255.255.255.0	Eth2
144.72.68.64	255.255.255.224	Eth3

   A packet bearing a destination address 144.72.68.117 arrives at router on which interface will it be forwarded?
   A. Eth0 B. Eth1 C. Eth2 D. Eth3

   Solution: Option C

4. 127.0.127.195 is a:
   A. Limited Broadcast Address
   B. Direct Broadcast Address
   C. Multicast Address
   D. Loop Back Address

   Solution: Option D

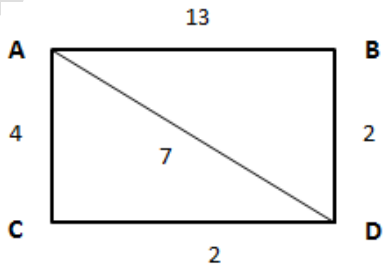
5. Let computer A and B have IP addresses 72.195.126.113 and 72.195.126.91 respectively and both uses subnet mask ‘N’. Then what is the value of ‘N’ that should not be used out of following, if both belong to same network?
   A. 255.255.255.0
   B. 255.255.255.128
   C. 255.255.255.192
   D. 255.255.255.224

   Solution: Option D

6. Resource Reservation is a feature of:
   A. Circuit Switching
   B. Packet Switching
   C. Both (A) and (B)
   D. None of these

   Solution: Option A

7. Consider the following network:



   Using Distance Vector Routing, the distance to ‘B’ that ‘A’ will store initially in its routing table_____ and once the router have been converged, the distance to B that A will store in its routing table is_____ ?
   A. 9 and 8
   B. 13 and 9
   C. 13 and 8
   D. 13 and 13

Solution: Option C

8. In OSPF, which of the following router should be in area zero?
   A. Area Border Router
   B. Designated Router
   C. Backbone Router
   D. Boundary Router

   Solution: Option C

Common Data Questions: Q. 9, Q. 10 and Q.11

Consider three IP networks A, B and C. Host H_A in networks 'A' sends message each containing 180 B of application data to a host H_C in network H_C. The TCP layer prefixes 20 Bytes header to the message. This passes through on intermediate network 'B'. The maximum packet size, including 20B IP headers in each network is:
A. 500 Bytes
B. 100 Bytes
C.1000 Bytes

The network A and B are connected through 512 Kbps link, while B and C are connected by a 256 Kbps link.

9. Assuming that the packets are correctly delivered, how many Bytes including headers, are delivered to IP layer at destination for one application message in the best case? Consider only data packets.
   A. 220 B.240 C. 260 D. 280

   Solution: Option C

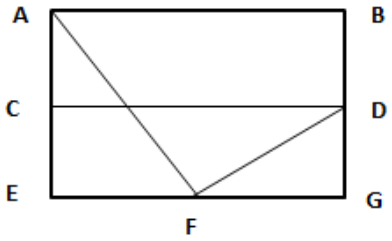
10. What is the rate at which application data is transferred to host H? Ignore errors, acknowledgements and other overheads?
   A. 196 Kbps B. 177.23 Kbps C. 354.5 Kbps D. 325.5 Kbps

   Solution: Option A

11. What is the extra overhead caused by fragmentation?
   A. 40 Bytes B. 20 Bytes C. 0 Bytes D. 60 Bytes
   Solution: Option A

12. For the network given in the figure below, the routing table of the nodes A, E, D and G are

shown. Suppose that F has estimated its delay to its neighbours A, E, D and G are 8, 10, 12 and 6 msecs respectively and update its routing table distance vector routing technique.



Routing Tables:

A

A	0
B	40
C	14
D	17
E	21
F	9
G	24

E

A	24
B	27
C	7
D	20
E	0
F	11
G	22

D

A	20
B	8
C	30
D	0
E	14
F	7
G	22

G

A	21
B	24
C	22
D	19
E	22
F	10
G	0

Which one of the following options represents the updated routing table of F?

(A)

A	8
B	20
C	17
D	12
E	10
F	0
G	6

(B)

A	21
B	8
C	7
D	19
E	14
F	0
G	22

(C)

A	8
B	20
C	17
D	12
E	10
F	16
G	6

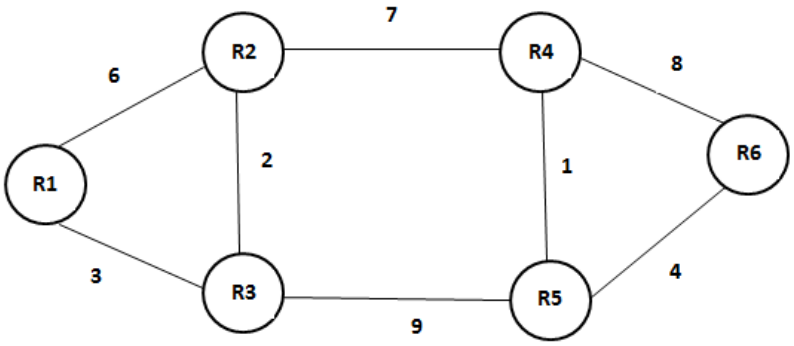
(D)

A	8
B	8
C	7
D	12
E	10
F	0
G	6

Solution: Option A

Linked Answer Type Question

Consider the network with 6 Routers R1 to R6 with links and weights as shown below:



Common Data Questions: Q.13 and Q.14

13. After routing tables stabilize using distance vector routing. How many links in the network will never be used for carrying any data?

A. 4 B. 3 C. 2 D. 1

Solution: Option C

14. Suppose, weight of all unused links in the previous question are changed to 2 and using DVR, all routing tables stabilizes. How many links will now remain unused?

A. 0 B. 1 C. 2 D. 3

Solution: Option B

15. Two popular routing algorithm are Distance Vector (DV) and Link State (LS) routing. Which of the following are true?
(a) Count-to-infinity is a problem only with DV, not LS.
(b) In LS, shortest path algorithm is run only at one node.
(c) In DV, the shortest path algorithm, run only at one node.
(d) DV requires lesser number of messages than LS.

A. a, b and d
B. a, c and d
C. b and c only
D. a and d only

Solution: Option D

16. The transport layer protocols used for real time multimedia, FTP, DNS and email respectively are:
A. TCP, UDP, UDP and TCP
B. UDP, TCP, TCP and UDP
C. UDP, TCP, UDP and TCP
D. TCP, UDP, TCP and UDP

Solution: Option C

17. Consider a TCP connection in a state where there are no outstanding Acks. The sender sends two segments back to back. The sequence numbers of first and second segments are 750 and 870 respectively. The first segment was lost, but second was received correctly by the receiver. Let X be the amount of data carried in first segment (in Bytes), Y be the Ack number sent by the receiver. The value of X and Y are:

A. 120 and 870
B. 120 and 990
C. 750 and 990
D. 120 and 750

Solution: Option D

18. What is the maximum size of data that the application layer can pass on to the TCP layer below?
A. Any size
B. 216 B to Header size
C. 216 Bytes
D. 1500 Bytes

Solution: Option A

19. Packets of same session may be routed through different paths in
A. TCP but not UDP
B. TCP and UDP
C. UDP but not TCP
D. Neither TCP nor UDP

Solution: Option B

20. What mechanism is used by TCP to provide flow control as segments travel from source to destination?
A. Sequence number
B. Session establishment
C. Window size
D. Acknowledgement

Solution: Option C