Marks Obtained:

KATHMANDU UNIVERSITY
End-Semester Examination [C]
July, 2017

Level : B. Sc. | Course : COMP 204
Year : II | Semester : II
Exam Roll No. : | Time: 30 mins. | F. M. : 10
Registration No.: | Date JUL 14 2017

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Tick(√) the best alternative(s).

1. Which one of the following operations is not performed in data link layer?
[a] Framing [b] error control [c] flow control [d] channel coding

2. CIDR is helps to
[a] Efficiently addressing [b] Waste less addressing
[c] Error less addressing [d] Dynamic addressing

3. The conditional GET mechanism
[a] Imposes conditions on the objects to be requested
[b] Limits the number of response from a server
[c] Helps to keep a cache upto date
[d] None of the mentioned

4. Which of the following is a form of DoS attack ?
[a] Vulnerability attack [b] Bandwidth flooding
[c] Connection flooding [d] All of the mentioned

5. Bit stuffing refers to
[a] inserting a '0' in user stream to differentiate it with a lag
[b] inserting a '0' in lag stream to avoid ambiguity
[c] appending a nibble to the lag sequence
[d] appending a nibble to the use data stream

6. Frequency range at which the land coaxial cables are used, is
[a] 106 to 108 Hz [b] 1010 to 1011 Hz [c] 103 to 104 Hz [d] None of these

7. Start and stop bits are used in serial communication for
[a] error detection [b] error correction
[c] slowing down the communication [d] synchronization

8. Routers operate in which layer of the OSI model?
[a] Physical layer [b] Data link layer [c] Network Layer [d] Transport Layer

9. In which network topology there are bidirectional links between each possible node?
[a] Star [b] Bus [c] Mesh [d] Ring

10. Which of the following media access control is uses channelization?
[a] FDMA [b] CDMA [c] Polling [d] Token Passing

11. Which of the following routing technique uses Bellman Ford algorithm?
[a] Shortest Path [b] Link State [c] Distance Vector [d] Hierarchical

12. What is the maximum number of IP addresses that can be assigned to hosts on a local subnet that uses the 255.255.255.224 subnet mask?
[a] 14 [b] 15 [c] 16 [d] 30

13. You need to subnet a network that has 5 subnets, each with at least 16 hosts. Which classful subnet mask would you use?
[a] 255.255.255.192 [b] 255.255.255.224 [c] 255.255.255.240 [d] 255.255.255.248

14. Digital signature uses
[a] Asymmetric cipher [b] Symmetric cipher
[c] Multicharacter symmetric cipher [d] Single character symmetric cipher

15. Which of the following in not an application layer protocol?
[a] HTTP [b] FTP [c] SMTP [d] UDP

16. Redundancy code in data link layer is used to
[a] Redundantly sends the data to receiver
[b] Send Extra information to the receiver about data
[c] Detect and correct errors during transmission
[d] Detect errors during transmission

17. Token bucket algorithms has advantage of ____ over leaky bucket algorithms.
[a] Uniform output rate [b] Burst error
[c] Handling bulky packets [d] Fast transmission

18. medium with having least rate of data transmission is
[a] Shielded Twisted pair [b] Unshielded Twisted pair
[c] Fibre optics [d] Co-axial cable

19. Packet data unit of Data link layer is called
[a] Packet [b] Frame [c] Header [d] Segment

20. The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called
[a] Piggybacking [b] cyclic redundancy check
[c] fletcher's checksum [d] none of the mentioned

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SECTION "B"

[6Q × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. Explain basic features and characteristics of data communication and networking. [1+3]

2. What is IP addressing? Why and How is subnet addressing performed? [1+3]

3. Discuss data rate limit theorem in digital transmission. What is the theoretical highest bit rate of a regular telephone line having a bandwidth of 3000 Hz (300 Hz to 3300 Hz). The signal-to-noise ratio is usually 35 dB (3162) on up-link channel. [2+2]

4. Explain in detail about CSMA/CD Protocol. How does it detect the collisions? [4]

5. Describe in brief about CDMA Media Access control. [4]

6. What advantages does fiber optics have over other media? Explain in brief about working mechanism of fiber optics. [1+3]

7. Explain in brief about the working procedure of error correction techniques in checksum procedure. [4]

SECTION "C"

[2Q × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. Explain the traffic shaping techniques performed by network layer in data communication. [8]

9. Define briefly about operation of sliding window protocol. What are the advantages of selective repeat ARQ over other ARQ? Discuss the working mechanism of Selective Repeat ARQ. [2+2+4]

10. Briefly describe about the factors that define quality of service of Data Communication and Networking. Discuss three fundamental aspects of security in data communication and networking. [2+6]