KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2017

Marks Scored:

Level : B.Sc.
Year : II
Course : COMP 204
Semester : II
Exam Roll No. :
Time : 30 mins.
F. M. : 10
Registration No. :
Date : MAR 27 2017

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Tick (√) the correct answer(s) or fill in the blanks with most appropriate word/phrase.

1. The values GET, POST, HEAD etc are specified in ____ of HTTP message
a) Request line b) Header line c) Status line d) Entity body

2. The HTTP response message leaves out the requested object when _____ method is used
a) GET b) POST c) HEAD d) PUT

3. Which of the following is not correct ?
a) Web cache does not has its own disk space
b) Web cache can act both like server and client
c) Web cache might reduce the response time
d) Web cache contains copies of recently requested objects

4. What does the conditional GET mechanism do?
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) Helps to communicate with server securely

5. Which of the followings is not a form of DoS attack ?
a) Vulnerability attack b) Bandwidth flooding
c) Connection flooding d) spoofing

6. Packet sniffers involve _____
a) Active receiver b) Passive receiver
c) alteration of message d) coding of message

7. Which transmission media has the highest transmission speed in a network?
a) coaxial cable b) twisted pair cable c) optical fiber d) electrical cable

8. The physical layer translates logical communication requests from the _____ into hardware specific operations.
a) data link layer b) network layer c) transport layer d) application layer

9. Three or more devices share a link in _____ connection
a) Unipoint b) Multipoint c) Point to point d) broad point

10. Which one of the following protocols can be used for login to a shell on a remote host except SSH?
a) telnet b) clogin c) login d) telfast

11. Encryption is handled by the _____ layer.
a) data link b) transport c) session d) presentation

12. Twisted-pair cable accepts and transports signal in the form of _____.
a) electromagnetic Waves b) electric current
c) infrared d) microwave

13. Waves ranging in frequencies between _____ are called microwaves.
a) 3 GHz and 300 GHz b) 1 MHz and 300 MHz
c) 3 THz and 300 THz d) 300 GHz and 400 GHz

14. Process of checking errors in communication transmissions by combining vertical error checking and _____ error checking.
a) cyclic b) longitudinal c) checksum d) parity bit

15. What is the network layer protocol of Internet ?
a) ethernet b) internet protocol
c) hypertext transfer protocol d) none of the mentioned

16. Which one of the following is not a function of network layer?
a) routing b) inter-networking
c) congestion control d)process to process communication

17. The network layer concerns with _____
a) bits b) frames c) packets d) segments

18. TCP Transmission control protocol is _____
a) connectionless oriented protocol
b) does not uses a three way handshake to establish a connection
c) does not receives data from application as a single stream
d) may or may not receives data from application as a single stream

19. Header of a frame generally does not contains _____
a) synchronization bytes b) addresses
c) frame identifier d) actual message

20. What will be the number of addressable IP in the IP address block 205.10.10.10/29?
a) 5 b) 7 c) 15 d) 2

KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2017

MAR 2 7 2017

Level : B.Sc.
Year : II
Time : 2 hrs. 30 mins.

Course : COMP 204
Semester : II
F. M. : 40

SECTION "B"
[6Q × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. What is data communication? Explain with its component and characteristics. [1+3]

2. Using appropriate scenario, elaborate how Hamming code helps to correct errors? What is/are the drawbacks? [3+1=4]

3. Explain, using an example, how bit stuffing is used to preserve frame boundaries when transmitting binary data at the Data Link level of the protocol stack.

4. Explain the traffic shaping techniques performed by network layer in data communication.

5. Discuss the performance of ALOHA and slotted-ALOHA with necessary assumptions.

6. Write briefly about different physical transmission medium according to their transmission capabilities.

7. Implement Cyclic redundancy check for the following conditions.
The polynomial for the divisor is: x^3+x^2+1
The polynomial for the dataword is $(x^2+x+1)(x^4+x^3+x+1)$
   a. Show the checking of the codeword at the receiver site assuming no error has occurred.
   b. What is the syndrome at the receiver end if the dataword has an error in the 2^{nd} bit position counting from the right? [2+2=4]

SECTION "C"
[2Q × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. Differentiate between public key cryptography and private key cryptography. Explain procedure of private key cryptography in brief. [4+4=8]

9. a. Explain working mechanism and different protocols used in electronic mail communication. [4]
   b. Frame to be sent during frame transmission is 0111101011001010. Use checksum procedure for detecting error in frame transmission. [4]

10. An ISP is granted block of addresses starting with 190.80.0.0/16. The ISP needs to distribute these addresses to three groups of customers as follows:
   a. The first group has 50 customers, each needs 256 addresses.
   b. The second group has 200 customers, each needs 32 addresses.
   c. Design the subblocks and find out how many addresses are still available after these allocations. [3+3+2=8]