

KATHMANDU UNIVERSITY
End semester Examination
May/June 2022

Marks Obtained:

Level : B. E.
Year : III

Course : ETEG 303
Semester : II

Exam. Roll No. :

Time: 30 mins.

F.M. : 10

Registration No.:

Date :

SECTION "A"
[20Q. × 0.5 = 10 marks]

Encircle the appropriate option.

1. The only difference between T568A and T568B Ethernet cable is that.....
 - a. The brown and blue pairs are interchanged
 - b. The blue and orange pairs are interchanged
 - c. The orange and green pairs are interchanged
 - d. The green and brown pairs are interchanged

2. In IEEE the Asia Pacific Region is also called
 - a. R7
 - b. R8
 - c. R9
 - d. R10

3. Of the following,is an example of simplex communication device.
 - a. Telephone
 - b. Repeater
 - c. Walkie-Talkie
 - d. Keyboard

4. In FDD,distinct frequency band/s is/are allocated for user/s.
 - a. One, One
 - b. One, Two
 - c. Two, One
 - d. Two, Two

5. The minimum bandwidth of Manchester line coding scheme istimes that of NRZ line coding scheme.
 - a. Half
 - b. Two
 - c. Four
 - d. Eight

6. If bit rate is 10 Kbps and if the case factor is assumed to be average, what would be the baud rate if NRZ line coding scheme is used.
 - a. 500 baud
 - b. 1 kbaud
 - c. 5 kbaud
 - d. 10 kbaud

7. Of the topology listed, topology is known for its highest reliability.
 - a. Bus
 - b. Ring
 - c. Star
 - d. Mesh

8. In Distance Vector Routing, the route update information is shared.....
 - a. Periodically
 - b. When there is a change
 - c. When requested by neighboring nodes
 - d. When the node wakes up from its sleep state

9. Of the following,layer converts packets to frames and frames to packets in the OSI model.
 - a. Transport Layer
 - b. Network Layer
 - c. Data Link Layer
 - d. Physical Layer

10. The Process-to-Process delivery of the entire message is the responsibility of thelayer in OSI model.
 - a. Application Layer
 - b. Session Layer
 - c. Transport Layer
 - d. Network Layer
11. In internet employing TCP/IP, the logical addresses can be
 - a. Unicast
 - b. Multicast
 - c. Broadcast
 - d. Either a, b, or c
12. According to ICANN, the ports ranging from 1024 to 49151 are known as.....
 - a. Well-known ports
 - b. Registered ports
 - c. Dynamic ports
 - d. ICANN controlled ports
13. In IPv4, which of the following field helps to check the rearrangement of the fragments?
 - a. Fragment offset
 - b. IHL
 - c. ECN
 - d. Header checksum
14. If any node finds out the logical address of another node by using address resolution protocols, the process is called.....
 - a. Static Mapping
 - b. Dynamic Mapping
 - c. Address Mapping
 - d. Reverse Mapping
15. If the data from upper layer is received as 000111111001111100001111101100010, the number of bits stuffed will be
 - a. 1
 - b. 2
 - c. 3
 - d. 4
16. In HDLC frame format, if 10 is indicated in the control field the type of frame is
 - a. I-Frame
 - b. S-Frame
 - c. T-Frame
 - d. Piggybacked frame
17. A congestion resolution technique in which a congested node stops receiving packets form upstream node is called.....
 - a. Backpressure
 - b. Choke packet
 - c. Implicit signaling
 - d. Explicit signaling
18. FDDI LAN uses.....topology for the connecting the distributed nodes.
 - a. Bus
 - b. Tree
 - c. Ring
 - d. Star
19. The manager in SNMP internet management protocol
 - a. Runs client program
 - b. Runs server program
 - c. Sends trap message
 - d. Keeps record of the number of packets received and forwarded
20. Which of the following is the first step for developing the simulation model?
 - a. Designing the problem
 - b. Identifying the problem
 - c. Selecting a model
 - d. Developing a model

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Time : 2 hrs. 30 mins.

Course : ETEG 303
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F. M. : 40

SECTION "B"
[8Q × 5 = 40 marks]

Attempt *ALL* questions.

Missing data may be suitably assumed. Each symbol carries their usual meaning.

1.
 - a. If you are given a task to design a LAN for limited number of users in indoor scenario, which cable do you prefer among twisted pair and co-axial cable and why? [2]
 - b. Define the roles of ITU-T, ITU-R and ITU-D, respectively. [3]
2.
 - a. What are the benefits that we could achieve from employing STDM in comparison to TDM during multiplexing? [2]
 - b. What is the significant benefit of using Manchester Line Coding scheme in comparison to using NRZ-L? Draw the graph of the NZR-L and Manchester Line Coding schemes, respectively, using the data stream as 10100111001. [3]
3.
 - a. What are the three fundamental characteristics on which the effectiveness of any networks depends on? [3]
 - b. What is difference between Router and Switch? [2]
4. Compare TCP/IP protocol suite with OSI Layers protocol suite highlighting the roles of each layer. [5]
5.
 - a. On the basis of what parameters do you find IPv6 better than IPv4, discuss. [2]
 - b. What is ARP and how does it work? [3]
6.
 - a. Compare the working principle of Selective Repeat ARQ with working principle of Go-Back-N ARQ. [2]
 - b. PPP is composed of LCP, AP, and NCP, explain, what are the roles of each of them to make the PPP as powerful link layer protocol? [3]
7.
 - a. List down and briefly discuss any three services provided by Network Layer in TCP/IP model. [3]
 - b. What are the key features of IEEE 802.11ax standard? [2]
8.
 - a. Draw the Network Management reference model and explain the needs of network management in field of communication engineering. [3]
 - b. What are the different steps that we need to care during modeling and analysis of any system? [2]

