Enrollment No......................................

Faculty of Science
End Sem (Even) Examination May-2019
BC3CO14 Computer Networks

Programme: B.Sc. (CS)   Branch/Specialisation: Computer Science

Duration: 3 Hrs.   **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1
i. When collection of various computers seems a single coherent system to its client, then it is called: **1**
(a) Computer network   (b) Distributed system
(c) Both (a) and (b)   (d) None of these

ii. Internet access by transmitting digital data over the wires of a local telephone network is provided by **1**
(a) Leased line   (b) Digital subscriber line
(c) Digital signal line   (d) None of these

iii. Wireless transmission can be done via: **1**
(a) Radio waves   (b) Microwaves
(c) Infrared   (d) All of these

iv. Which transmission media has the highest transmission speed in a network? **1**
(a) Coaxial cable   (b) Twisted pair cable
(c) Optical fiber   (d) Electrical cable

v. Which one of the following task is not done by data link layer? **1**
(a) Framing   (b) Channel coding
(c) Flow control   (d) Error control

vi. CRC stands for: **1**
(a) Code redundancy check   (b) Cyclic repeat check
(c) Cyclic redundancy check   (d) Code repeat check

vii. ICMP is primarily used for **1**
(a) Error and diagnostic functions
(b) Addressing
(c) Forwarding
(d) None of these

viii. Which one of the following routing algorithm can be used for network layer design? **1**
(a) Distance vector routing   (b) Link state routing
(c) Shortest path algorithm   (d) All of these

ix. DNS database contains _____ **1**
(a) Name server records   (b) Hostname-to-address records
(c) Hostname aliases   (d) All of these

x. In cryptography, what is cipher? **1**
(a) Algorithm for performing encryption and decryption
(b) Encrypted message
(c) Both algorithm for performing encryption and decryption and encrypted message
(d) None of these

Q.2 i. Define computer network. **3**

ii. During the communication how the various layer exchange information in OSI model? Describe with the help of suitable diagram. **7**

OR iii. Explain the TCP/IP architecture. Show the comparison with the OSI model with the help of schematic diagram. **7**

Q.3 i. Write names of four fundamental characteristics which make data communication system effective. **2**

ii. Explain optical fiber cable. Write its one advantage and disadvantage. **3**

iii. Define five components of data communication. **5**

OR iv. Explain taxonomy of transmission media. **5**

Q.4 i. Write short note on Bluetooth. **2**

ii. Explain Utopian simplex protocol for error-free channel with the help of flow chart. **3**

iii. Compute the CRC for a 10 bit sequence 1010001111 using a divisor of 1011. **5**

OR iv. If the 7 bit hamming code word received by a receiver is 1011011. Assuming the even parity state whether the received code word is correct or wrong. If wrong locate the bit having error. **5**

Q.5   Attempt any two:
i. Define and explain distance vector routing. **5**
ii. Explain Broadcast and multicast routing. **5**
iii. Write down five differences between IPV4 and IPV6. **5**

Q.6 i. Write any two application layers design issue. **2**
ii. Name and explain any three protocols of application layer. **3**
iii. Explain domain name system with one example in detail. **5**
OR iv. Write short note on Cryptography, and Digital Signature. **5**

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Marking Scheme
BC3CO14 Computer Networks

Q.1 i.   When collection of various computers seems a single coherent system to its client, then it is called: **1**
(b) Distributed system

ii. Internet access by transmitting digital data over the wires of a local telephone network is provided by **1**
(b) Digital subscriber line

iii. Wireless transmission can be done via: **1**
(d) All of these

iv. Which transmission media has the highest transmission speed in a network? **1**
(c) Optical fiber

v.   Which one of the following task is not done by data link layer? **1**
(b) Channel coding

vi. CRC stands for: **1**
(c) Cyclic redundancy check

vii. ICMP is primarily used for **1**
(a) Error and diagnostic functions

viii. Which one of the following routing algorithm can be used for network layer design? **1**
(d) All of these

ix. DNS database contains _____ **1**
(d) All of these

x.   In cryptography, what is cipher? **1**
(a) Algorithm for performing encryption and decryption

Q.2 i.   Definition computer network.   2 marks   **3**
Block diagram   1 mark

ii. OSI model diagram.   3.5 marks   **7**
Each 7 layers description
0.5 marks each (0.5 mark * 7)   3.5 marks

OR iii. OSI model schematic diagram.   4 marks   **7**
Explanation   3 marks

Q.3 i.   Four fundamental characteristics   **2**
0.5 mark for each   (0.5 mark * 4)

ii. Optical fiber cable   1 mark   **3**
One advantage   1 mark
One disadvantage.   1 mark

iii. Five components of data communication.   **5**
1 mark for each   (1 mark * 5)

OR iv. Taxonomy of transmission media.   3 marks   **5**
Explanation   2 marks

Q.4 i.   Bluetooth.   1 mark   **2**
Architecture   1 mark

ii. Utopian simplex protocol for error-free channel flow chart. **3**
Flow chart   2 marks
Explanation   1 mark

iii. Compute the CRC for a 10 bit sequence 1010001111   **5**
Correct division   4 marks
CRC code   1 mark

OR iv. Three parity bit checking   **5**
1 mark for each (1 mark * 3)   3 marks
To say about error yes/no   1 mark
Error bit location   1 mark

Q.5   Attempt any two:
i.   Distance vector routing.   **5**
Statement   2 marks
Explanation   3 marks

ii. Broadcast routing   2.5 marks   **5**
Multicast routing   2.5 marks

iii. Five differences between IPV4 and IPV6.   **5**
1 mark for each   (1 mark * 5)

Q.6 i.   Any two application layers design issue.   **2**
1 mark for each issue   (1 mark * 2)

ii. Any three protocols of application layer.   **3**
Name 0.5 mark for each (0.5 mark * 3) 1.5 marks
Explanation
0.5 mark for each (0.5 mark * 3)   1.5 marks

iii. Domain name system   3 marks   **5**
Example   2 marks

OR iv. Cryptography   2.5 marks   **5**
Digital Signature.   2.5 marks

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