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

Faculty of Engineering

End Sem (Odd) Examination Dec-2018
CA5CO12 Computer Networks

Programme: MCA   Branch/Specialisation: Computer Application

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. Delivery of data is delayed in _____circuit switching because data must be stored and retrieved from RAM **1**
(a) Space division switching (b) Virtual switching
(c) Message switching   (d) Packet switching

ii. _____ is the bandwidth of the signal that ranges from 40 KHz to 4 MHz **1**
(a) 36 MHz   (b) 360 MHz (c) 3.96 MHz (d) 396 MHz

iii. Prevention of overflow of receiver buffer is known as **1**
(a) Error control   (b) Flow control
(c) Both (a) and (b)   (d) None of these

iv. In CRC, the divisor is always _____ the CRC **1**
(a) Same size as CRC   (b) One bit less than CRC
(c) One bit more than CRC   (d) No matter whatever

v. Error is _____ in wireless transmission than wired transmission **1**
(a) More   (b) Less   (c) Half   (d) None of these

vi. The connection between switches is called_____ **1**
(a) Transmission path   (b) Virtual path
(c) Virtual circuit   (d) All of these

vii. IP is responsible for _____ communication while TCP is responsible for _____ communication **1**
(a) Host-to-host; process-to-process
(b) Process-to-process; Host-to-host
(c) Process-to-process; node-to-node
(d) Node-to-node; process-to-process

viii. A Bridge can_____   **1**
(a) Filter a frame   (b) Forward a frame
(c) Extend a LAN   (d) All of these

ix. A DNS _____ server gets its data from another DNS   **1**
server
(a) Primary   (b) Secondary   (c) Root   (d) All of these

x. A user computer usually needs _____ to sned email   **1**
(a) Only SMTP   (b) Only POP
(c) Both SMTP and POP   (d) FTP

Q.2   Attempt any two:

i. Explain different ways in which the OSI reference model and TCP/IP Model are like and different.   **5**

ii. How many number of signal levels are needed to transmit 128 Kbps over noiseless channel with bandwidth of 20 KHz?   **5**

iii. Explain and compare ATDM and STDM.   **5**

Q.3   i. Explain 1-bit sliding window protocol with its working.   **3**

ii. Prove that the throughput of the Slotted Aloha is double of the Pure Aloha.   **7**

OR   iii. Message $X^9+X^7+X^5+X^3+1$ is received using generator polynomial $X^3 + 1$. Is it error free?   **7**

Q.4   Attempt any two:

i. Compare LAN standards 802.3, 802.4 and 802.5.   **5**

ii. In the IEEE 802.11 specification, the length of the SIFS period must be shorter than the DIFS period. Why?   **5**

iii. Write down the short note on the following: **5**
(a) ATM   (b) ISDN

Q.5   Attempt any two:

i. Explain the distance vector routing algorithm. Also explain count to infinity problem.   **5**

ii. Compare the IPv4 and IPv6 on at least 5 criteria.   **5**

iii. Differentiate between the following: **5**
(a) Repeater and Amplifier   (b) Router and Gateway

Q.6   Attempt any two:

i. Explain the Congestion control algorithms. Also compare them.   **5**

ii. Explain the working of DNS. Also explain the use of DNS with suitable example.   **5**

iii. Write brief notes on the following: **5**
(a) WWW   (b) Email

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Q.1   i.   Delivery of data is delayed in _____circuit switching   1
             because data must be stored and retrieved from RAM
             (c) Message switching

      ii.   _____ is the bandwidth of the signal that ranges from 40 KHz to   1
             4 MHz
             (c) 3.96 MHz

      iii.   Prevention of overflow of receiver buffer is known as   1
             (b) Flow control

      iv.   In CRC, the divisor is always _____ the CRC   1
             (b) One bit less than CRC

      v.   Error is _____ in wireless transmission than wired transmission   1
             (a) More

      vi.   The connection between switches is called_____   1
             (d) All of these

      vii.   IP is responsible for _____ communication while TCP   1
             is responsible for _____ communication
             (a) Host-to-host; process-to-process

      viii. A Bridge can_____   1
             (c) Extend a LAN

      ix.   A DNS _____ server gets its data from another DNS   1
             server
             (c) Root

      x.   A user computer usually needs _____ to send email   1
             (c) Both SMTP and POP

Q.2   Attempt any two:
      i.   Ways in which the OSI reference model   2.5 marks   5
             TCP/IP Model are like and different   2.5 marks

      ii.   For Formula   2 marks   5
             Complete answer   3 marks

      iii.   Comparison ATDM   2.5 marks   5
             STDM.   2.5 marks

Q.3   i.   1-bit sliding window protocol with its working.   3

      ii.   Prove that the throughput of the Slotted Aloha is double of the   7
             Pure Aloha.
             Explanation   3 marks
             Derivation   4 marks

OR   iii.   Stepwise marking   7

Q.4   Attempt any two:
      i.   Compare LAN standards 802.3, 802.4 and 802.5.   5
      ii.   In the IEEE 802.11 specification, the length of the SIFS period   5
             must be shorter than the DIFS period. Why?
      iii.   (a) ATM   2.5 marks   5
             (b) ISDN   2.5 marks

Q.5   Attempt any two:
      i.   Distance vector routing algorithm.   3 marks   5
             Count to infinity problem.   2 marks
      ii.   Compare the IPv4 and IPv6 on at least 5 criteria   5
             1 mark for each difference   (1 mark * 5)
      iii.   Differentiate between the following: 5
             (a) Repeater and Amplifier   2.5 marks
             (b) Router and Gateway   2.5 marks

Q.6   Attempt any two:
      i.   Congestion control algorithms.   5
             Leaky bucket   2.5 marks
             Token bucket   2.5 marks
      ii.   Working of DNS   5
             Definition and diagram   2 marks
             Explanation   3 marks
      iii.   Write brief notes on the following: 5
             (a) WWW   2.5 marks
             (b) Email   2.5 marks

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