



## COLLEGE OF ENGINEERING & TECHNOLOGY

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Course : Communication Networks

Course Code : EC 553

### Sheet (8)- Network Layer Protocols

#### Q1. Multiple Choice

- i- What is the maximum size of the data portion of the IP datagram
- 65,535
  - 65,515
  - 65,475
  - 65,460
- ii- A best effort delivery service such as IP does not include \_\_\_\_\_.
- Error checking
  - Error correction
  - Datagram acknowledgement
  - All the above
- iii- AN HLEN value of decimal 10 means \_\_\_\_\_
- There is 10 bytes of options
  - There is 40 bytes of options
  - There is 10 bytes in the header
  - There is 40 bytes in the header
- iv- In IPv4, what is the length of the data field given an HLEN value of 12 and total length value of 40,000?
- 39,988
  - 40,012
  - 40,048
  - 39,952
- v- A datagram is fragmented into three smaller datagrams. Which of the following is true?
- The do not fragment bit is set to 1 for all three datagrams
  - The more fragment bit is set to 0 for all three datagrams
  - The identification field is the same for all three datagrams
  - The offset field is the same for all three datagrams
- vi- If the fragment offset has a value of 100 it means that \_\_\_\_\_.
- The datagram has not been fragmented
  - The datagram is 100 bytes in size
  - The first byte of the datagram is byte 100
  - The first byte of the datagram is byte 800

- vii- What is needed to determine the number of the last byte of a fragment?
- Identification number
  - Offset number
  - Total length
  - (b) & (c)

- viii- The IP header size \_\_\_\_\_
- Is 20 to 60 bytes long
  - Is 20 bytes long
  - Is 60 bytes long
  - Depends on the MTU

**Q2.** Which fields of the IP header change from router to router?

**Q3.** Calculate the HLEN value if the total length is 1200 bytes, 1176 of which is data from the upper layer?

**Q4.** Can the value of the header length in an IP packet be less than 5? When is it exactly 5?

**Q5.** The value of the total length field in an IP packet is 36, and the value of the header length field is 5. How many bytes of data is the packet carrying?

**Q6.** A datagram is carrying 1024 bytes of data. If there is no option information, what is the value of the header length field? What is the value of the total-length field?

**Q7.** An IP datagram arrives whose fragmentation offset is 0 and whose Mbit (more fragment bit) is 0. Is this a fragment?

**Q8.** An IP fragment has arrived whose offset value is 100. How many bytes of data were originally sent by the source before the data in this fragment?