Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14CS2066** | **Duration :** | **3hrs** |
| **Sub. Name :** | **TCP/IP** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Refer to the exhibit below. Sketch the process of encapsulation and decapsulation for five layers of TCP/IP. | CO1 | 5 |
| b. | Summarize the functionalities of seven layers of OSI Model. | CO1 | 15 |
| (OR) | | | | |
| 2. | a. | Imagine the length of a 10Base5 cable is 2500 meters. If the speed of propagation in a thick coaxial cable is 200,000,000 meters/second, how long does it take for abit to travel from the beginning to the end of the network? Ignore any propagationdelay in the equipment. | CO2 | 5 |
| b. | Compare and contrast CSMA/CD with CSMA/CA. | CO2 | 10 |
|  | c. | Outline the features of layer 2 connecting devices in networks. | CO2 | 5 |
|  |  |  |  |  |
| 3. | a. | What are the two main functions of network layer? | CO2 | 5 |
|  | b. | Identify the class of the following IP address  i. 129.10.0.1 ii. 223.12.67.98 iii. 10.6.8.9  iv. 204.192.178.20 v. 162.204.20.10 | CO2 | 5 |
|  | c. | Write the subnet mask for the following prefix.  i. /20 ii. /8 iii. /16 iv. /30 v. /23 | CO2 | 5 |
|  | d. | Identify the error in the following IP address.  i. 0.0.0.1 ii. 127.0.0.1.1 iii. 300.12.23.45  iv. 120.130.20.0 v. 192.168.3 | CO2 | 5 |
| (OR) | | | | |
| 4. | a. | For a given network address 192.70.10.0/24, the number of needed subnet is 10. Formulate an classless subnetting scheme and provide the following details:  i. Number of bits borrowed. ii. Custom subnet mask.  iii. Number of networks and host/network. iv.Number of usable address | CO3 | 5 |
|  | b. | What is the first valid host on the subnetwork that the node 192.168.112.15/25 belongs to? | CO3 | 5 |
|  | c. | How many subnets and hosts per subnet can you get from the network 10.0.0.0/20? | CO3 | 5 |
|  | d. | How many subnets and hosts per subnet can you get from the network 192.168.187.0 255.255.255.224? | CO3 | 5 |
|  |  |  |  |  |
| 5. |  | A mobile host relocates itself from NETWORK A to NETWORK B. Design a protocol for the smooth handoff of data packets transferred from foreign host to the mobile host. Discuss the issues in the traditional Mobile IP protocol. | CO3 | 20 |
| (OR) | | | | |
| 6. | a. | Show the autonomous system with the following specifications:   1. There are eight networks (N1 to N8) 2. There are eight routers (R1 to R8) 3. N1, N2, N3, N4, N5, and N6 are Ethernet LANs 4. N7 and N8 are point-to-point WANs 5. R1 connects N1 and N2 6. R2 connects N1 and N7 7. R3 connects N2 and N8 8. R4 connects N7 and N6 9. R5 connects N6 and N3 10. R6 connects N6 and N4 11. R7 connects N6 and N5 12. R8 connects N8 and N5 | CO2 | 10 |
|  | b. | List the various types of timers used in RIP Protocol. | CO2 | 5 |
|  | c. | Contrast and compare distance vector routing with link state routing. | CO2 | 5 |
|  |  |  |  |  |
| 7. | a. | Create a Sequence diagram for the following scenario:  The sender sends three packets.The first and second packets arrived and acknowledged. The third packet isdelayed and resent. The duplicate packet is received after the acknowledgment forthe original to be sent. | CO2 | 5 |
|  | b. | With neat sketch explain the header structure of TCP. | CO2 | 15 |
| (OR) | | | | |
| 8. | a. | An SNMP client residing on a host with IP address 122.45.12.7 sends a message toan SNMP server residing on a host with IP address 200.112.45.90. What is the pair of sockets used in this communication? | CO3 | 5 |
|  | b. | Give examples of any two specific cases where UDP serves as a good transport layer protocol. | CO2 | 5 |
|  | c. | Calculate UDP Checksum for the following pseudo header. | CO2 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Justify the need of DHCP in Networks. | CO3 | 5 |
|  | b. | How do DNS resolve IP address for the given URL? | CO3 | 5 |
|  | c. | Explain the working principle of File transfer Protocol | CO3 | 10 |

ALL THE BEST