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

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**End Semester Examination - Nov/Dec - 2018**

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| **Code :** | **17CS2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPUTER NETWORKS** | **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. | Give short notes on physical media. | CO1 | 10 |
| b. | Classify the access networks based on their usages and explain them with appropriate diagrams. | CO2 | 10 |
| (OR) | | | | |
| 2. |  | List down the seven layers of the OSI reference model and describe the functionalities of each of the layers. | CO1 | 20 |
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| 3. | a. | Describe the HTTP request and response message formats with neat sketch. | CO1 | 10 |
| b. | Analyze the problems involved in the centralized DNS design. | CO3 | 5 |
| c. | Identify the services needed by an application. | CO2 | 5 |
| (OR) | | | | |
| 4. | a. | List and explain the services provided by Domain Name System in the Internet. | CO1 | 5 |
| b. | Compare and contrast SMTP and HTTP. | CO2 | 5 |
| c. | Describe the interactive and recursive look up process of DNS. | CO2 | 10 |
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| 5. | a. | Calculate the checksum for the following three 16-bit words. Also, describe the process of checksum verification.  0110011001100000  0101010101010101  1000111100001100 | CO4 | 10 |
| b. | Using appropriate FSM, explain the traffic from the sender to the receiver under the following conditions.   1. The underlying channel may loose the data packets. 2. The underlying channel is prone to bit errors. 3. The sender is allowed to transmit multiple packets without waiting for an acknowledgement, but constrained to have no more than ‘N’ unacknowledged packets in the pipeline. | CO6 | 10 |
| (OR) | | | | |
| 6. | a. | With neat sketch and values of the flag bits in the header, explain the process of connection establishment and termination in TCP. | CO2 | 10 |
| b. | One of the major services of transport layer is flow control. How does TCP carry out flow control? | CO3 | 10 |
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| 7. | a. | Draw and explain IPv4 header structure. | CO1 | 15 |
| b. | Compare and contrast Distance Vector Routing Protocol and Link State Routing Protocol. | CO2 | 5 |
| (OR) | | | | |
| 8. |  | Consider the topology shown below.    Denote the three subnets with hosts (starting clockwise at 12:00) as Networks A, B, and C. Denote the subnets without hosts as Networks D, E, and F.Assign network addresses to each of these six subnets, with the following constraints:   1. All addresses must be allocated from 214.97.254.0/24; 2. Subnet A should have enough addresses to support 120 interfaces; 3. Subnet B should have enough addresses to support 60 interfaces; and Subnet C should have enough addresses to support 25 interfaces. 4. Subnets D, E and F should each be able to support two interfaces. 5. For each subnet, the assignment should take the form a.b.c.d/x. | CO5 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | List and explain the services provided by the link layer. | CO2 | 5 |
| b. | Write short notes on the following error detection and correction techniques.   1. Parity check. 2. Checksum. | CO1 | 15 |