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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May– 2017**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14CS2007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPUTER NETWORKS** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | List six access technologies. Classify each one as home access, enterprise access, or wide-area wireless access. | CO1 | 10 |
| b. | Calculate the delay in sending a packet of length 1,000 bytes from Host A to Host B propagated over a link of distance 2,500 km with propagation speed 2.5 x 108 m/s, and transmission rate 2 Mbps. | CO2 | 5 |
| c. | Describe the delays experienced in a computer network with necessary formulae. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Explain various functions of circuit switched networks and compare it with packet switched networks. | CO1 | 10 |
| b. | Describe TCP/IP protocol layers and concept of encapsulation in protocol stack. | CO1 | 10 |
| 3. |  | Consider a scenario where a user Alice, with a Web-based e-mail account (such as Hotmail or gmail), sends a message to another user Bob, who accesses his mail from his mail server using any mail access protocol. How does the message get from Alice’s host to Bob’s host. Distinguish various mail access protocols. | CO2 | 20 |
| (OR) | | | | |
| 4. | a. | State all the services provided by DNS and explain its working with example. | CO2 | 10 |
|  | b. | Describe the format of HTTP request and response message. What are the different methods in HTTP request message of HTTP/1.0 and HTTP/1.1? | CO2 | 10 |
| 5. | a. | With relevant examples discuss in detail the Go Back N protocol. | CO1 | 10 |
|  | b. | Sketch the FSM for the Sender side of protocol rdt3.0. | CO1 | 6 |
|  | c. | Suppose Host A sends two TCP segments back to back to Host B over a TCP connection. The first segment has sequence number 90; the second has sequence number 110.   1. Compute how much data is in the first segment? 2. Suppose that the first segment is lost but the second segment arrives at B. Evaluate the acknowledgment number if segment is sent from Host B to Host A? | CO1 | 4 |
| (OR) | | | | |
| 6. | a. | Describe the TCP Segment header format with neat sketch. | CO1 | 5 |
|  | b. | With neat diagram discuss the TCP connection establishment process. | CO1 | 5 |
|  | c. | Compute network address, range of usable address and the broadcast address for the following:   1. 192.168.166.166 /25 2. 127.23.4.0 3. 200.168.166.176 /30 4. 153.67.12.1 /10 | CO2 | 10 |
| 7. | a. | Describe Distance Vector Routing Protocol (DVR) in detail. Also, demonstrate the best path from the source node **‘u’** to the destination node ‘**z**’ using DVRP.  C:\Users\Durga\Desktop\Fig for exammanager\fig3.jpg | CO3 | 10 |
|  | b. | With neat sketch, describe the Router architecture. | CO1 | 10 |
| (OR) | | | | |
| 8 | a. | Compare and contrast IPv4 and the IPv6 header. Do they have any fields in common? | CO3 | 10 |
|  | b. | Describe the procedure to dynamically assign IP address to the hosts by the DHCP server with example. | CO3 | 10 |
|  | | **Compulsory:** |  |  |
| 9. | a. | A bit stream 101110 is transmitted using the standard CRC method. The generator polynomial is 1001. Show how the CRC code bits are formed and is used to validate the bit stream. Suppose if the third bit from the left is inverted during its transmission. Explain how this error is detected at the receiver’s end. | CO1 | 10 |
|  | b. | Summarize the categories of protocols in Channel partitioning MAC and Random access MAC protocols. | CO3 | 10 |