Indian Institute of Information Technology Vadodara

B. Tech (CS/IT) Semester V (Autumn 2021-22)

Examination: End Semester Examination (Remote Session)

Course ID: CS 301 **Course name**: Computer Networks
Full Marks: 40 **Date**: 18.11.2021

Exam Slot: 11:50 am – 12:50 pm **Exam Duration**: 60 minutes

Scan & Upload: 12:50 – 1:00 pm

Instructions

1. **Attempt ALL questions**.

2. Use a Notebook/A4 papers to write the answers to Remote session test.

3. Before attempting the questions, carefully read and understand the question.

4. Answers should be readable, else they may not be considered for grading.

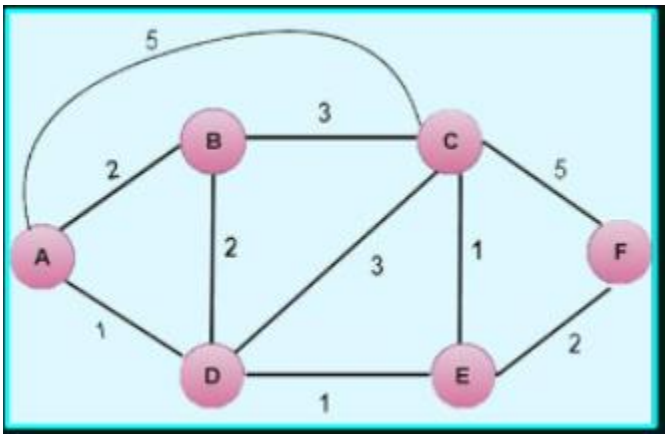
5. Don't share your answers with the other students. You may be asked to explain the answer over phone/ google meet before final evaluation.

6. The final PDF uploaded should contain all pages sequentially arranged.

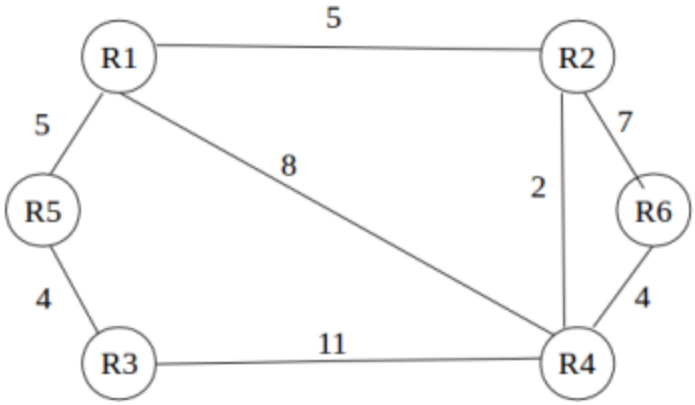
7. The uploaded PDF file should be renamed as **courseid_rollno.pdf**.

8. Late submission is not allowed, and would be penalized during grading.

Q1. Find the shortest path routing using open shortest path first (OSFP) algorithm for the following network graph. Start from node **A.** **(8 Marks)**



Q2. Explain the distance vector routing algorithm by running it for the following graph. Also show the final routing table. **(8 Marks)**



Q3. Explain the **count-to-infinity** problem in the distance vector routing using an example. **(4 Marks)**

Q4. A router advertises IPV6 prefix as **2000:1234:5678::/64**. The MAC address of a host connected to this router is **0200:EBA4:C1AE**. Find the auto-configured 128bits IPV6 address of the host. **(4 Marks)**

Q5. A window holds bytes 3002 to 6001. The next byte to be sent is 4001. Draw a figure to show the situation of the window after the following two events: **(6 Marks)**

(i) An ACK segment with the acknowledgement number 3500 and window size advertisement 5000 is received.

(ii) A segment carrying 1000 bytes is sent.

Q6. Subnet the IP address **15.0.0.0** into networks of **100** hosts each subnet according to host requirement. **6 Marks)**

Q7. a. Differentiate between Static NAT, Dynamic NAT and Port address Translation. **(2 Marks)**

b. Differentiate between forwarding and routing. **(2 Marks)**