

COLLEGE OF ENGINEERING, PUNE
(An Autonomous Institute of Govt. of Maharashtra)
Test-1 Computer Networks

Program: T.Y.B.Tech. Computer Engineering

Year: 2022-23 Semester I Date: 20/09/2022 Duration: 1 hr. Max. Marks: 20

Instructions:

1. Attempt all questions.
2. Figures to right indicate full marks
3. Draw neat figures wherever required.
4. Assume suitable data, if necessary.

Marks

- Q.1 A) ✓ Consider the difference between circuit switching and packet switching. Assume the link's rate is 2 Mbps and users are generating data at a rate of 100 Kbps when busy. Users are busy only 1 % of the time. What is the maximum number of users that a circuit switching architecture can support simultaneously? 01
- B) ✓ Consider a packet switching architecture. From the following options, select the main components of delay when using packet switching. 01
- I. Processing delay
 - II. Queuing
 - III. Transmission
 - IV. Propagation delay
- C) ✓ True or False? 01
- Propagation delay is affected if the length of the packet is increased. *True*
- D) ✓ True or False? 01
- Consider an application that transmits data at a steady rate (for example the sender generates an N-bit unit of data every K time units, where K is small and fixed). Also, when such an application starts, it will continue running for a relatively long period of time. A circuit-switched network would be more appropriate for this application. *True*
- E) ✓ Can packet loss occur in packet switching, despite using an output queue buffer? Justify your answer. 02
- F) ✓ What is the role of the router's forwarding table? 02
- G) ✓ Explain the difference between FDM and TDM. 02

- Q.2 A)** Which of the following addresses is used to deliver a message to the correct application program running on a host? **01**
- I. Port
 - II. IP
 - III. Logical
 - IV. Physical
- B)** True or False? **01**
- A socket address should be a combination of an IP address, a MAC address, and a port number. *False*
- C)** A user requests a web page that consists of some text and three images. For this page, the client will send one request message and receive response messages. **01**
- D)** True or False? **01**
- Two distinct web pages (for example, www.coep.org.in/research.html and www.coep.org.in/students.html) can be sent over the same persistent connection. *True*
- E)** Consider an HTTP client that wants to retrieve a web document at a given URL. The IP address of the HTTP server is initially unknown. What transport and application-layer protocols besides HTTP are needed in this scenario? **02**
- F)** List the names of pull email protocols. **01**
- G)** Suppose a user wants to load a simple static HTML page into his/her browser. Also, assume RTT is 5 seconds and the total needed time for the page to be transferred is 4 seconds. Calculate the time it takes from the initial request to the server until the user receives the file completely. **01**

~~H)~~

The content of an HTTP request is as shown below.

02

GET /martignon/index.html HTTP/1.1

Host: cs.unibg.it

User Agent: Mozilla/5.0 (Macintosh; U; PPC Mac OS X; en)

AppleWebKit/124

(KHTML, like Gecko) Safari/125

Accept: ext/xml, application/xml, application/xhtml+xml,
text/html;q=0.9,

text/plain;q=0.8, image/png,*;q=0.5

Accept-Language: it

Keep-Alive: 300

Connection: keep-alive

Answer the following questions and indicate which field in the HTTP request you used to find the answer:

- ☒ I. What is the requested URL?
- ☒ II. Which version of HTTP is used?