

Class Test-01

Course Title: Computer Networks

Course Code: CIS 211

Section: Batch 18

Total Mark: 15

(a)	<p>You are a network administrator for a growing IT services company that needs to efficiently allocate IP addresses to different departments in its headquarters. The company has been assigned the IP block <u>192.168.100.0/24</u> and needs to segment this block to avoid IP address wastage. The department requirements are as follows:</p> <ul style="list-style-type: none">• IT Support: <u>50</u> IP addresses• Development: <u>25</u> IP addresses• HR: <u>20</u> IP addresses <p>Now recognize the Network Address, Broadcast Address, Subnet Mask, first address and Last address for each department with proper evaluation.</p>	8
(b)	<p>I. Expand the address 0:15A::B:12F:113 to its original?</p> <p>II. Express the IP address 00FD:0012:0000:0000:0000:B1DD:FFFA in more abbreviated form?</p>	3
(c)	<p>Explain how data is exchanged between sender and receiver following OSI reference model?</p>	4

$$\begin{array}{r} 128 \\ 64 \\ 32 \\ \hline 224 \end{array}$$

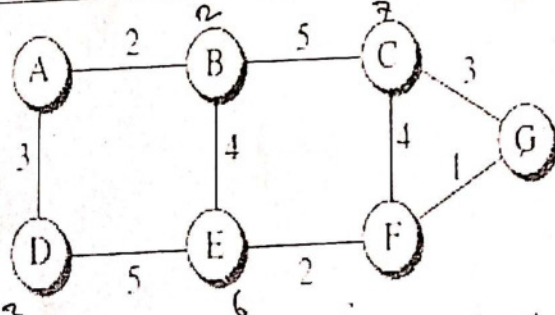
Class Test-02

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(a)	In a network design for an organization with voice calls and data transfers between branches, which switching technique (packet switching or circuit switching) would you choose for each, and why?	5
(b)	 <p>Find out the distance from router A to router G using link-state routing algorithm? Also show the shortest path?</p>	6
(c)	If a new device wants to connect to a network, how will it obtain its necessary configuration automatically?	4

A B C G

Class Test-03

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Imagine a user named **Sara** is browsing an online shopping website using her browser. When she opens the homepage, several resources such as images, CSS files, and JavaScript scripts are loaded. After browsing for a while, she clicks on a product and watches a demo video. Later, she submits a product review using a form on the same site.

(1)	When Sara loads the homepage and multiple resources are fetched (images, CSS, JS), explain the difference in behavior if the website uses <i>persistent HTTP</i> versus <i>non-persistent HTTP</i> . How would each affect the loading time and network traffic?	5
(2)	When Sara watches the demo video, the website uses <i>UDP</i> for streaming. Why is <i>UDP</i> chosen instead of <i>TCP</i> for this activity, and what are the benefits and drawbacks of this decision?	5
(3)	Write down the congestion control process that is used by <i>TCP</i> ? ✓	5

Rafsan