



UCSC

University of Colombo, Sri Lanka

University of Colombo School of Computing



**DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
(EXTERNAL)**

Academic Year 2022— 2nd Year Examination — Semester 4

IT4506 — Computer Networks

Part 1 - Multiple Choice Question Paper
(ONE HOUR)

Important Instructions

- The duration of the paper is **ONE HOUR**.
- The medium of instructions and questions is English.
- This paper has **25 questions** on **6 pages**.
- All questions are of the MCQ (Multiple Choice Questions) type.
- All questions should be answered.
- **Each question has 5 (five) choices with one correct answer.**
- All questions carry **equal** marks.
- Answers should be marked on the special answer sheet provided.
- Note that questions appear on both sides of the paper. If a page is not printed, please inform the supervisor immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**
- Non Programmable Calculators may be used.
- *All Rights Reserved.*

Answer questions **1 to 5** using the following information.

A machine in a network (L) uses the network address 8.8.8.8 and the subnet mask 255.255.255.0.

1). What is the above subnet mask in CIDR notation?

- | | | |
|---------|----------|--------|
| (a) /24 | (b) /255 | (c) /0 |
| (d) /16 | (e) /124 | |

2). What is the maximum number of machines that can be connected to L ?

- | | | |
|--------|---------|---------|
| (a) 24 | (b) 255 | (c) 254 |
| (d) 24 | (e) 128 | |

3). What is the broadcast address of the network L ?

- | | | |
|-------------|-------------------|-------------|
| (a) 8.8.8.8 | (b) 255.255.255.0 | (c) 0.0.0.0 |
| (d) 1.1.1.1 | (e) 8.8.8.255 | |

4). Assume that the network L is divided into 2 equal size sub networks, $L1$ and $L2$. The network address of $L1$ is 8.8.8.0. What is the network address of $L2$?

- | | | |
|-------------|---------------|-------------|
| (a) 8.8.8.8 | (b) 8.8.8.128 | (c) 0.0.0.0 |
| (d) 1.1.1.1 | (e) 8.8.8.255 | |

5). Assume that the network L is divided into 4 equal size sub networks. Which one of the following is a subnetmask of one of those sub networks?

- | | | |
|---------------------|---------------------|---------------------|
| (a) 255.255.255.0 | (b) 255.255.255.256 | (c) 255.255.255.192 |
| (d) 255.255.255.253 | (e) 255.255.255.128 | |

6). What is the Hamming distance between the following two code words?

11111001
11110001

- | | | |
|-------|-------|-------|
| (a) 0 | (b) 2 | (c) 1 |
| (d) 8 | (e) 5 | |

7). Which of the following is NOT a field in the UDP header?

- (a) Destination MAC address
- (b) Source Port
- (c) Destination Port
- (d) Length
- (e) Checksum

8). Which one of the following is NOT a TCP port number?

- | | | |
|-----------|----------|-----------|
| (a) 10 | (b) 82 | (c) 87243 |
| (d) 62301 | (e) 1024 | |

9). What is the range of values possible in the TCP checksum field?

- (a) 0 - 32
- (b) 0 - 65535
- (c) 0 - 4095
- (d) 0 - 4294967295
- (e) 1- 1024

10). A TCP connection experiences a packet loss when the congestion window is at 40 KB. What is the value of the **threshold** after this packet loss?

- | | | |
|-----------|-----------|-----------|
| (a) 80 KB | (b) 0 KB | (c) 20 KB |
| (d) 1 KB | (e) 32 KB | |

11). What is meant by marshalling?

- (a) Packing the parameters
- (b) Unpacking the parameters
- (c) Securing the parameters
- (d) Pushing the parameters
- (e) Pulling the parameters

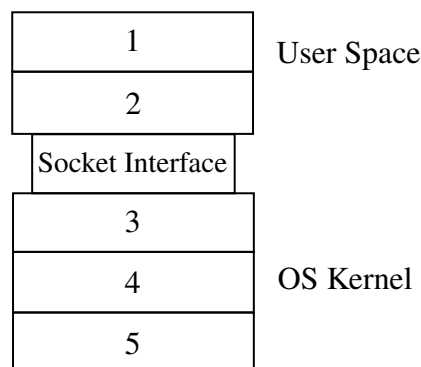
12). Which of the following is a step of Remote Procedure Call (RPC)?

- (a) Client calling the server stub.
- (b) Server calling the client stub.
- (c) The operating system passing the incoming packet to the server stub.
- (d) Client stub unpack the parameters into a message.
- (e) The operating system passing the incoming packet to the client stub.

13). What is the underline protocol used in an RTP (Real-Time Transport Protocol)?

- (a) UDP
- (b) TCP
- (c) HTTP
- (d) HTTPS
- (e) IMAP

14). In which layer of the following protocol stack the RTP (Real-Time Transport Protocol) placed?



- (a) 1
- (b) 2
- (c) 3
- (d) 4
- (e) 5

15). Select the protocol which is not used in the Application Layer of OSI model?

- (a) TCP
- (b) HTTP
- (c) DNS
- (d) IMAP
- (e) SMTP

16). Among the following which is the port number reserved for SSH (Secure Shell)?

- (a) 20
- (b) 21
- (c) 22
- (d) 80
- (e) 224

17). In a TCP connection, what happens when the sender's timer goes off before the TCP acknowledgement receives?

- (a) TCP crashes.
- (b) Sender will retransmit.
- (c) TCP window size increases.
- (d) Network connection drops.
- (e) Timer increments.

18). When there is a problem in the TCP connection, what is the TCP flag used to terminate the connection?

- | | | |
|---------|---------|---------|
| (a) URG | (b) ACK | (c) PSH |
| (d) SYN | (e) RST | |

19). What is the file used in ARPANET to list all the computer names and their IP addresses?

- | | | |
|---------------|---------------|-----------------|
| (a) ip.txt | (b) names.txt | (c) address.txt |
| (d) hosts.txt | (e) arp.txt | |

20). What is the tuple of the domain resource record that defines the protocol family?

- | | | |
|-----------------|-----------|------------------|
| (a) Domain_name | (b) Type | (c) Time_to_live |
| (d) Value | (e) Class | |

21). Which of the following organizations is devoted to the further development of the web?

- | | | |
|----------|----------|---------|
| (a) WWW | (b) IEEE | (c) W3C |
| (d) CSSL | (e) IANA | |

22). What is the correct statement regarding the *Management Plane* of the *Switch Architecture*?

- (a) Packet buffering, packet scheduling, header modification, and forwarding
- (b) Consists of the various ports that are used for the reception and transmission of packets.
- (c) Keep the forwarding table updated.
- (d) Contains the protocols responsible for managing the active topology of the network.
- (e) Used by network administrators to configure and monitor the network.

- 23). Assume that there is a *Mininet* network that has two hosts (**h1**, **h2**) and one switch (**s1**). Both **h1** and **h2** are connected to **s1**. What is the correct *Mininet* command that can be used to check whether communication is possible between **h1** and **h2**?

- (a) mininet> ping h1 h2
- (b) mininet> h1 ping h2
- (c) mininet> h1 test h2
- (d) mininet> h2 ping h1
- (e) mininet> tes h1 h2

- 24). What is the main component of the SDN architecture which maintains a view of the entire network, and implements policy decisions?

- | | | |
|--------------------|--------------------|----------------------|
| (a) SDN Devices | (b) SDN Controller | (c) SDN Applications |
| (d) Northbound API | (e) Southbound API | |

- 25). Which layer of the OSI reference model uses *segments* as the PDU (Protocol Data Unit)?

- | | | |
|-------------|-------------|-------------|
| (a) Layer 1 | (b) Layer 2 | (c) Layer 3 |
| (d) Layer 4 | (e) Layer 5 | |

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