



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (TELECOMMUNICATION AND INFORMATION
TECHNOLOGY)

SPH431: INTERNET TECHNOLOGY

DATE: 10/8/2021

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Define the following terms in relation to internet technology?
 - i. a Service and (2 marks)
 - ii. a Protocol (2 marks)
- b) Highlight three requirements for the Web (3 marks)
- c) Illustrate the fundamental dereference between a (i.) and (ii) above (4 marks)
- d) An employee is having connectivity issues. Explain why a network technician may try to ping the default gateway from the employee laptop? (4 marks)
- e) Describe the physical construction characteristics of the following transmission media.
 - i. Twisted pair (4 marks)
 - ii. Coaxial cable (4 marks)
 - iii. Optical Fibre cable (4 marks)
- f) DHCP for IPv4 preferred for use on large networks. Explain the reasons for this preference? (3 marks)

QUESTION TWO (30 MARKS)

- a)
 - i. Define a “Virtual Circuit” (2 marks)
 - ii. Explain two types of virtual circuits and their operations in WAN (6 marks)
- b) Analyze two services that are supported by ISDN (3 marks)
- c) Describe three Types of internet access that are provided by Most ISPs (9 marks)

QUESTION THREE (30 MARKS)

- a) Explain reasons for having TCP and IP together in network transmissions. (4 marks)
- b) Give reasons why Telnet for remote logins should be discontinued under all normal circumstances: (6 marks)
- c) Describe the tags and their functions as used in the following html excerpt (10 marks)

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Page Title</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
body {
  font-family: Arial, Helvetica, sans-serif;
}
</style>
</head>
<body>
<h1>My Website</h1>
<p>A website created by me.</p>
</body>
</html>
```

QUESTION FOUR (30 MARKS)

- a) Explain the functions of following IP packet fields
- i. Flags (2 marks)
 - ii. Time-to-live (2 marks)
 - iii. Options (2 marks)
- b) Describe Two types of packet-switching methods used on networks (6 marks)
- c) Explain the Advantages of ISDN over other modes of communication (8 marks)

QUESTION FIVE (30 MARKS)

- a) Explain the working of An IP address (4 marks)
- b) Discuss the importance of having Internet Service Providers (6 marks)
- c) Describe the most popular WAN technologies used today (10 marks)