higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MULTIMEDIA SERVICE
NQF LEVEL 4

XX February 2020

This marking guideline consists of 10 pages.

Copyright reserved

SECTION A

QUESTION 1

1.1	1.1.1	True
	1.1.2	False
	1.1.3	True
	1.1.4	False
	1.1.5	True
	1.1.6	False
	1.1.7	True
	1.1.8	False
	1.1.9	True
	1.1.10	True
	1.1.11	True
	1.1.12	True
	1.1.13	True
	1.1.14	False
	1.1.15	True

(15 × 1) (15)

1.2	1.2.1	D
	1.2.2	A
	1.2.3	A
	1.2.4	A
	1.2.5	D
	1.2.6	C
	1.2.7	C
	1.2.8	B
	1.2.9	B
	1.2.10	C

(10 × 1) (10)
[25]

TOTAL SECTION A: 25

SECTION B

QUESTION 2

2.1 An intrusion prevention system (IPS) is used to prevent an intrusion. ✓ It is an extension of an intrusion detection system (IDS). ✓An IDS only detects whereas an IPS protects the network from an intrusion by dropping the packet, denying entry to the packet or blocking the connection.
(Any relevant answers 2 × 1) (2)

2.2 2.2.1 Packet filtering is a firewall technique used to control network access✓ by monitoring outgoing and incoming packets✓ and allowing them to pass or halt based on the source and destination Internet Protocol (IP) addresses, protocols and ports. ✓
(Any relevant answers 3 × 1) (3)

2.2.2 Application gateway firewalls operate at the application layer of the OSI model. ✓ They filter access based on application definitions. ✓ Application definitions can include not only port numbers but also specific application information like acceptable HTTP verbs✓.
(Any relevant answers 3 × 1) (3)

2.2.3 A typical next-gen product combines packet inspection with tasteful inspection✓ but also includes some variety of deep packet inspection. ✓ Next-generation firewalls have a greater application awareness ✓and deploy various techniques for identifying different applications including web-based ones. They store the details of approved applications and examine the data packets for any issues. They also keep a baseline for deviations from normal application behaviours, which can help system administrators.
(Any relevant answers 3 × 1) (3)

2.3 Hacking generally refers to unauthorised intrusion✓ into a computer or a network. ✓ The person engaged in hacking activities is known as a hacker. This hacker may alter system or security features to accomplish a goal that differs from the original purpose of the system. Hacking can also refer to non-malicious activities, usually involving unusual or offhand modifications to equipment or processes. (Any relevant answers 2 × 1) (2)

2.4 2.4.1 It is a computer program that is designed to assess computers, computer systems, networks or applications for known weaknesses✓. These scanners are used to discover the weak points or poorly constructed parts of the computer network. ✓Once discovered, the hackers use that to hack into the network or computer. ✓ (Any relevant answers 3 × 1) (3)

2.4.2 The process of recovering passwords✓ from data stored or transmitted by computer systems. ✓ A common approach (brute-force attack) is to try guessing repeatedly for the password and check these tries against an available cryptographic hash of the password. ✓ (Any relevant answers 3 × 1) (3)

2.4.3 The term computer virus originated to describe the machine code command ✓ inserted into a computer's memory✓ that on execution copies itself into other programs and files on the computer. ✓Worms are simply viruses that send copies over network connections. Viruses can help create a weakness in the computer security system thus giving way for hackers to gain access.
(Any relevant answers 3 × 1) (3)

2.4.4 Spoofing is a practice used by cyber scammers and hackers to deceive systems, ✓ individuals and organisations into seeing something to be what it is not. ✓Communication is initiated by the spoofer to the victim or system from an unknown source but camouflaged to present itself as a genuine and safe sender. ✓
(Any relevant answers 3 × 1) (3)
[25]

QUESTION 3

3.1 3.1.1 Bus topology is a specific kind of network topology in which all the various devices in the network✓ are connected✓ to a single cable or line. ✓ In general, the term refers to how various devices are set up in a network. Typically, the cable in the bus topology has two end terminals that dampen the signal so that it does not keep moving from one end of the network to the other. Different types of bus topology can be referred to as linear or distributed bus topology. (Any relevant answers 3 × 1) (3)

3.1.2
- It is cost effective.
- Less cable is required compared to other network topology.
- It is used in small networks.
- It is easy to understand.
- It is easy to expand joining two cables together.
- It is easy to connect a computer or peripheral to a linear bus.

(Any relevant answers 3 × 2) (6)

3.1.3
- The entire network shuts down if there is a break in the main cable.
- Terminators are required at both ends of the backbone cable.
- It is difficult to identify the problem if the entire network shuts down.
- It is not meant to be used as a stand-alone solution.
- If the network traffic is heavy or nodes are more, the performance of the network decreases.
- Cable has a limited length.
- It is slower than the ring topology. (Any relevant answers 3 × 2) (6)

3.2
- Hypertext mark-up language (HTML)✓ was the coding language for webpages, which allowed content creators to format articles and add hyperlinks and media.✓
- Hypertext transfer protocol (HTTP)✓ was the system for retrieving documents.✓
- Universal resource locators (URLs)✓ made web addresses like www.website.com possible.✓ (3 × 2) (6)

3.3 The Internet is a massive network of networks, ✓ a networking infrastructure. It connects millions of computers globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet ✓ whereas The World Wide Web/www/web - The World Wide Web, or simply Web, is a way of accessing information over the medium of the Internet. ✓ It is an information-sharing model that is built on top of the Internet. ✓ (Any applicable answers relating to the difference) (4)

[25]

QUESTION 4

4.1.1
```
SELECT *✓
FROM Customer✓
WHERE ✓Country = “Kenya”; ✓
```
(4)

4.1.2
```
SELECT *✓FROM Order✓
ORDER BY✓ TotalAmt DESC; ✓
✓ allocated for correct table(Order)
✓correct column(TotalAmt) and DESC
```
(4)

4.1.3
```
CREATE INDEX ✓IDX_CustomerID ✓
ON Customer(CustomerId) ✓
Use any name for index
```
(3)

4.1.4 DELETE FROM Customer✓
WHERE CustomerId = 2512✓
OR
DELETE FROM Customer✓
WHERE Firstname = “Carol” ✓ (2)

4.2 4.2.1 A network database is a type of database model where multiple✓ member records or files ✓can be linked to multiple owner files and vice versa. ✓ The model can be viewed as an upside-down tree where member information is the branch linked to the owner which is the bottom of the tree. Essentially, relationships are in a net-like form where a single element can point to multiple data elements and multiple data elements can pointed to the owner.
(Any relevant answers 3 × 1) (3)

4.2.2 A relational database is a set of formally described tables✓ from which data can be accessed or reassembled✓ in many different ways without having to reorganise the database tables. ✓ The standard user and application programming interface (API) of a relational database is the structured query language (SQL). SQL statements are used both for interactive queries for information from a relational database and for gathering data for reports.
(Any relevant answers 3 × 1) (3)

4.2.3 The main feature of object-oriented databases is allowing the definition of objects, ✓ which is different from normal database objects. ✓Objects in an object-oriented database, refer to the ability to develop a product, then define and name it. ✓The object can then be referenced, or called later, as a unit without having to go into its complexities. This is very similar to objects used in object-oriented programming. (Any relevant answers 3 × 1) (3)

4.2.4 A distributed database is a database in which portions of the database ✓are stored in multiple physical locations ✓and processing is distributed among multiple database nodes. ✓ It is a database in which storage devices are not all attached to a common processor. It may be stored in multiple computers, located in the same physical location or it may be dispersed over a network of interconnected computers. Unlike parallel systems in which the processors are tightly coupled and constitute a single database system a distributed database system consists of loosely coupled sites that share no physical components.
(Any relevant answers 3 × 1) (3)

[25]

QUESTION 5

5.1 JavaScript is a programming language used primarily by Web browsers to create a dynamic✓ and interactive experience for the user. ✓ Most of the functions and applications that make the Internet central to modern life are coded in some form of JavaScript. (Any relevant answers 2 × 1) (2)

5.2 Planning helps in defining target audiences. ✓ Many different types of people will view the website, such as prospective clients, current clients, job seekers, students interested in internships, employees, vendors, media, competitors and people from the industry who read the blog to stay up-to-date on best practices. Thus planning helps to focus the website on those most critical to the bottom-line: Prospective clients who may need the services, ✓ current clients who use some of the services but aren't aware of everything that is offered.

Planning helps in setting of goals and objectives. ✓ Sharing the services available, including the new focus on end-to-end solutions and examples of the work. ✓ Positioning the company as experts through free resources and 'how-to' blog posts, making it easy for visitors to take the next step by putting a call-to-action button on every page.

Planning helps create a sitemap. ✓ Before estimating the number of hours it would take to develop the website, it is necessary to know what the website might include. ✓So the web team could create a sitemap using the following steps: The sitemap from the current website can be used as a starting point.✓ Make sure all current services are well covered.

Planning helps in coming up with an estimate. ✓ Staff members can estimate their hours for: strategy, writing, designing, development, project management, quality assurance and testing. ✓

Planning helps in setting up a budget. – Before one can begin, management needs to know how much recourses are going to be required for the project.✓ Define roles and responsibilities – This is made easier during the planning stage of the project. (Any benefits 4 × 2) (8)

5.3 In computer programming, a script is a program✓ or sequence of instructions✓that is interpreted or carried out by another program rather than by the computer processor (as a compiled program is). In this case HTML is the one responsible for carrying the scripts on a webpage. (Any 2 × 1) (2)

Copyright reserved

5.4 5.4.1

```
<!DOCTYPE HTML>✓
 <head>
  <title>Demo Form.html</title>✓
   </head>
 <body>
  <h1>Demo Forms</h1>✓
  <form>
    <legend>Select ONE Fruit Only</legend>✓✓
<fieldset>
    <p>
      <label>Radio buttons</label> ✓
      <input type = "radio"✓
            name = "radSize"
            id = "sizeSmall"
            value = "small"
            checked = "checked" />
      <label for = "sizeSmall">APPLES</label>✓
      <input type = "radio"
            name = "radSize"
            id = "sizeMed"
            value = "medium" />
      <label for = "sizeMed">MANGO</label>✓
      <input type = "radio"
            name = "radSize"
            id = "sizeLarge"
            value = "large" />
      <label for = "sizeLarge">PEACHES</label>✓
     </p>
  </fieldset>✓
  </form>✓
 </body>✓
```

(Any relevant answers 6 × 1) (6)

5.4.2 Radio buttons are used for two or more choices that are mutually exclusive. ✓ This means that only one can be selected at a time. ✓ Whereas checkboxes offer a binary choice such as on/off or true/false. ✓ They can be used alone or they can be used in a group to offer multiple selections. ✓ (4)

5.4.3 <input type✓="submit"✓ value✓="Submit">✓ (3)

[25]

QUESTION 6

6.1
- Application layer✓consists of standard communication services✓ and applications that everyone can use. ✓
- Presentation layer✓ ensures that information is delivered✓ to the receiving system in a form that the system can understand. ✓
- Session layer✓ manages the connections✓ and terminations between cooperating systems. ✓
- Transport layer✓ manages the transfer of data. ✓ Also ensures that the received data is identical to the transmitted data. ✓
- Network layer manages data addressing and delivery between networks.
- Data link layer handles the transfer of data across the network media.
- Physical layers defines the characteristics of the network hardware.

(Any relevant answers 3 × 3) (9)

6.2 Convenience✓
The wireless nature of such networks allow users to access network resources from nearly any convenient location within their primary networking environment (a home or office). ✓ With the increasing saturation of laptop-style computers, this is particularly important.

Mobility✓
With the emergence of public wireless networks, users can access the internet even outside their normal work environment. ✓ Most chain coffee shops, for example, offer their customers a wireless connection to the internet at little or no cost.

Productivity✓
Users connected to a wireless network can maintain a nearly constant connection with their desired network as they move from place to place. ✓For a business, this implies that an employee can actually be more productive as his or her work can be carried out from any suitable location.

Deployment✓
Initial setup of an infrastructure-based wireless network requires little more than a single access point. ✓ Wired networks, on the other hand, have the additional cost and complexity of actual physical cables being run to numerous locations (which can even be impossible for hard-to-reach locations within a building).
Expandability✓
Wireless networks can serve a suddenly-increased number of clients with the existing equipment. In a wired network, ✓ additional clients would require additional wiring.

Cost✓
Wireless networking hardware is generally more costly than the wired counterparts. ✓ This potentially increased cost is almost always more than outweighed by the savings in cost and labour associated to running physical cables. (5 × 2) (10)

Copyright reserved

6.3 6.3.1 A proxy server is a server that sits between a client application such as a Web browser and a real server. ✓ It intercepts all requests to the real server✓ to see if it can fulfil the requests itself. If not, it forwards the request to the real server. Proxy servers can dramatically improve performance for groups of users. This is because it saves the results of all requests for a certain amount of time. (Any relevant answers 2 × 1) (2)

6.3.2 The main function of DNS is to translate domain names✓ into IP addresses which computers can understand. ✓ It also provides a list of mail servers which accept e-mails for each domain name. Each domain name in DNS will nominate a set of name servers to be authoritative for its DNS records. A domain controller gives access to another domain in a trust relationship so that a user logging into a domain can access resources in another domain. If the server performing the domain controller role is lost, the domain can still function. If the primary domain controller is not available, the administrator can designate an alternate domain controller to assume the role. (Any relevant answers 2 × 1) (2)

6.3.3 Dynamic host configuration protocol (DHCP) is a client/server protocol that automatically provides an internet protocol (IP) host✓ with its IP address and other related configuration information such as the subnet mask and default gateway. ✓ A DHCP (dynamic host configuration protocol) server waits for DHCP clients to make requests for IP addresses. The server is defined with one or more scopes or ranges of IP addresses. The server has a set of standard requests and responses, which create a finite state machine. The requests come in from clients, and are often redirected by a router. The request will typically contain the MAC address of a specific client and a response will contain a number of options, such as a subnet mask, gateway address, domain and domain servers. These dialogs between the clients and the server manage IP addresses through the temporary leases of the addresses to a specific client. (Any relevant answers 2 × 1) (2)

[25]

TOTAL SECTION B: 125
GRAND TOTAL: 150

Copyright reserved