higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MULTIMEDIA SERVICES
NQF LEVEL 4

15 November 2022

This marking guideline consists of 12 pages.

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INSTRUCTIONS TO MARKERS

1. Mark all the questions.
2. Follow the answers according to the numbering system used in this question paper.
3. Use only a red pen.
4. Put your ticks and crosses neatly and legibly.

SECTION A

QUESTION 1

1.1	1.1.1	True
	1.1.2	True
	1.1.3	False
	1.1.4	True
	1.1.5	False
	1.1.6	False
	1.1.7	True
	1.1.8	True
	1.1.9	False
	1.1.10	False
	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	A
	1.2.2	B
	1.2.3	B
	1.2.4	C
	1.2.5	A
	1.2.6	A
	1.2.7	B
	1.2.8	D
	1.2.9	C
	1.2.10	D

(10 × 1) (10)

TOTAL SECTION A: 25

SECTION B

QUESTION 2

2.1 A domain is a security system✓ used to authenticate users on a network.✓ All users on the network connection sign up to the domain controller,✓ using their user account and password.✓ Once they are signed up, they have access to the network.✓ (Any 4 × 1 (4)

2.2
- Application
- Transport
- Internet
- Network interface layer (4)

2.3 2.3.1 The Enforce Password History policy will set how often an old password can be reused.✓ It should be implemented with a minimum of 10 previous passwords remembered.✓ This policy will discourage users from reusing a previous password,✓ thus preventing them from alternating between several common passwords.✓ (Any 2 × 2) (2)

2.3.2 Passwords may not contain the username or parts of the user's full name, such as their first name.✓ Passwords must use include at least three of the four available character types: lowercase letters,✓ uppercase letters,✓ numbers,✓ and symbols. ✓ (Any 3 × 1) (3)

2.2.3 The policy creates a condition where a user must wait a period before making additional login attempts.✓ For example, a policy could dictate 3 failed attempts followed by a 180-second lockout penalty.✓ This type of login policy can prevent random computer-generated login attempts that occur many times a second.✓ (Any 2 × 1) (2)

2.3.4 The maximum password age policy setting determines the period (in days) that a password can be used before the system requires the user to change it.✓ You can set passwords to expire after several days between 1 and 999, or you can specify that passwords never expire by setting the number of days to 0.✓ (2)

2.4 2.4.1 The <h1> tag defines the main✓, biggest, heading. ✓ (2)

2.4.2 The <ol> tag defines an ordered✓ list.✓ (2)

2.5 A server is defined by its function,✓ not by its hardware or operating system.✓ A server is any computer whose main function is to share its resources with other computers.✓ A server is thus a computer that provides client computers or workstations with shared resources e.g. a printer.✓ the main purpose of a server is to support✓ and most servers are dedicated servers✓ and fulfil only one function e.g. mail server.✓ (Any 4 × 1) (4)

[25]

QUESTION 3

3.1
- Increased end-user productivity:✓ With the addition of DBMS the database becomes dynamic and useful.✓ DBMS allows the user to store, manipulate and view data in a database. The user can also add, remove, or edit data.✓ The availability of data, combined with the tools that transform data into usable information, empowers end users to make quick, informed decisions.✓
- Better data integration:✓ Wider access to well-managed data promotes an integrated view of the organisation's operations✓ and a clearer view of the big picture. It becomes much easier to see how actions in one segment of the company affect other segments.✓
- Improved data access:✓ The DBMS allows the information that is stored to be viewed and interpreted.✓ The DBMS makes it possible to produce quick answers to ad hoc queries.✓
- Improved data security:✓ DBMS allows you to give different rights and privileges to different types of users.✓ The more users access the data, the greater the risks of data security breaches. Corporations invest considerable amounts of time, effort, and money to ensure that corporate data are used properly. A DBMS provides a framework for better enforcement of data privacy and security policies.✓
- Improved data sharing:✓ The DBMS allows changes to be made to the database.✓ The DBMS helps create an environment in which end users have better access to more and better-managed data.✓ Such access makes it possible for end-users to respond quickly to changes in their environment.✓
- Improved decision making:✓ Better-managed data and improved data access make it possible to generate better-quality information,✓ on which better decisions are based. The quality of the information generated depends on the quality of the underlying data. Data quality is a comprehensive approach to promoting the accuracy, validity, and timeliness of the data. While the DBMS does not guarantee data quality, it provides a framework to facilitate data quality initiatives.✓ (Any 5 × 1) (5)

3.2 3.2.1 A "one to one" ✓ relationship between two tables means that a row in one table can only relate to one row in the table on the other side of their relationship✓ and vice versa. ✓

3.2.2 In a one-to-many✓ relationship, one record in a table✓ can be associated with one or more records in another table✓. For example, each customer can have many sales orders.

3.2.3 A many-to-many✓ relationship refers to a relationship between tables in a database when a parent row in one table contains several child rows in the second table✓ and vice versa. ✓ (3 × 3) (9)

3.3 3.3.1
```
SELECT Employee.Name,✓ Company.Company_Name✓
FROM Employee, Company✓
WHERE Employee.Emp_No = Company.Emp_No;✓
```
(4)

3.3.2
```
SELECT Employee.Name, Employee.Emp_City,
✓Company.Company_name, Company.Salary✓
FROM Employee,Company✓
WHERE Company.Salary >10000;✓
```
(5)

3.4 Backup database *Future_Bank* ✓
To disk – 'C:\\future_bank'; ✓ (2)
[25]

QUESTION 4

4.1

- Simplicity:✓ The practice of putting too many elements on the page usually distracts visitors from the main purpose of your website.✓ Simplicity always works in an effective web page design. The clean and fresh design of your website not only makes the website appealing but also help user to navigate from one page to another flawlessly. Loading a website having design features which do not serve the purpose may be frustrating.✓ Keep your design as simple as possible so that the visitors can feel it easy-to-use and can find their way easily.✓
- Consistency:✓ Everything must be planned.✓ Finalize the fonts and the right colours for your texts, buttons etc, and stick to them throughout the development.✓ CSS (Cascading Style Sheets) would come in handy to keep the complete information about design styles and elements.✓
- Typography & readability:✓ You should keep your typography visually appealing and readable for visitors, along with tricky use of keywords, meta-data, and other SEO-sensitive elements.✓
  Consider using fonts that are easier to read. Modern sans-serif fonts such as Arial,✓ Helvetica etc. can be used for the body texts. Make proper combinations of typefaces for every design element such as headlines, body texts, buttons etc. ✓
- Mobile compatibility:✓ Keeping in mind the ever-growing usage of smartphones, tablets and phablets, web design must be effective for various screens. ✓ If your website design doesn't support all screen sizes, the chance is that you'll lose the battle with your competitors. ✓
- Colour palette and imagery:✓ A perfect colour combination attracts users while a poor combination can lead to distraction. ✓ Enhance the user's experience by selecting a complementary colour palette to give a balanced look to your website design. ✓ Remember to white space use as it avoids your website from visual clutter and mess. Also, avoid using too many colours. 3 or 4 tones for the whole website are ample to give an appealing and clear design.✓ Same is the case with images. Don't use multiple vibrant images✓
- Easy Loading:✓ No one likes a website that takes too much time to load.✓ So take care of it by optimizing image sizes and combing code into a central CSS or JavaScript file as it reduces HTTP requests. ✓ Also, compress HTML, JavaScript, and CSS for enhanced loading speed. ✓
- Easy Navigation:✓ Visitors spend more time on the websites having easy navigation.✓ You should follow the "three-click rule" so that visitors can get the required information within three clicks. ✓
- Communication:✓ The ultimate purpose of the visitors is to get information, and if your website can communicate to your visitors efficiently, ✓ most probably they would spend more time on your website. ✓ Tricks that may work to establish effortless communication with the visitors are – organizing information by making good use of headlines and sub-headlines, cutting the waffle, and using bullet points, rather than long gusty sentences. ✓
- Purpose:✓ What is the purpose of the website? To make a profit, share thoughts, educate, or interact with others? The purpose of the website affects the design.✓

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- Audience:✓ Who is the target audience? The website must be designed to attract the target audience. ✓
- Marketing:✓ This refers to how to attract users to the website. Search engine optimisation (SEO) is a powerful tool for marketing a website. ✓
- Text and images:✓ Text and images keep users interested and help with navigation.✓
- Style:✓ The style of the website is the personality, the 'look and feel of the website and will attract users.✓
- Layout:✓ This refers to how the website is organised. Users will not spend time on a cluttered, unorganised website that is difficult to navigate.✓

(Any 6 × 2) (12)

4.2
- conceptualisation
- analysis
- design
- production
- testing
- launch
- maintenance
- evaluation (8)

4.3 4.3.1
- site identity
- brand
- logo
- title
- navigation links (e.g., home, services, about us, contact us)
- search box
- folder tabs (Any 2 × 1) (2)

4.3.2
- copyright
- ownership statement
- creation date
- revision date (Any 2 × 1) (2)

4.4 Drop-down menu,✓ left navigational columns.✓ (Any 1 × 1) (1)

[25]

QUESTION 5

5.1 5.1.1

```
<!DOCTYPE html>✓
<html>
<body>

<h1>Show checkboxes:</h1>

<form action="/action_page.php">✓
  <input type="checkbox" name="checkbox1" value="HouseA"> I have a HouseA<br>
  <input type="checkbox"✓ name="checkbox2" value="HouseB"> I have a HouseB<br>
  <input type="checkbox" name="checkbox3" value="HouseC" checked> I have a HouseC<br><br>
  <input type="submit" value="Submit">✓
</form>

</body>
</html>
```

5.1.2

```
<!DOCTYPE html>✓
<html>
<body>
<form action="/action_page.php">✓
<p>Please select your age:</p>
  <input type="radio" name="age" value="30"> 0 - 30<br>✓
  <input type="radio" name="age" value="60"> 31 - 60<br>
  <input type="radio" name="age" value="100"> 61 - 100<br>
  <input type="submit" value="Submit">✓
</form>

</body>

</html>
```

5.1.3

```
<!DOCTYPE html>✓
<html>
<body>
<h2>HTML Forms</h2>
<form action="/action_page.php">✓
  First name:<br>
  <input type="text" name="firstname" value="">
  <br>
  Last name:<br>
  <input type="text" name="lastname" value="">✓
  <br><br>
  <input type="submit" value="Submit">✓
</form>
</body>
</html>
```

5.1.4

```
<!DOCTYPE html>✓
<html>
<body>
<form action="/action_page.php">✓
  Email: <input type="text" name="email"><br>
  Password: <input type="password" name="pwd"
maxlength="8"><br>✓
  <input type="submit">✓
</form>
</body>
</html>
```

(4 × 4) (16)

5.2 The <! DOCTYPE html> declaration is used to inform a website visitor's browser✓ that the document being rendered is an HTML document.✓ While not an HTML element itself, every HTML document should begin with a DOCTYPE declaration to be compliant with HTML standards.✓ (2 × 1) (2)

5.3 A user is unable to bookmark any of the web pages viewed within a frame.✓ Frames can make the production of a website complicated.✓ It is easy to create badly constructed websites using frames✓ and a common mistake is to include a link that creates duplicate web pages displayed within a frame.✓
Search engines that reference a web page only give the address of that specific document. This means that search engines might link directly to a page that was intended to be displayed within a frameset.✓ Users have become so familiar with normal navigation using tables, the back button, and so on, that navigating through a site that uses frames can be a problem.✓ The use of too many frames can put a high workload on the server.✓ Older browsers do not support frames.✓ (Any 3 × 1) (3)

5.4 Lossy compression✓
Refers to making the file size smaller✓ by removing unnecessary bits of information.✓ The quality of the image is reduced✓ but the image quality is still good for the web.✓ These images load fast✓ and use a small amount of memory.✓

Lossless compression✓
Refers to compression that uses more memory✓ because it does not change the image.✓ It breaks the image into smaller parts for transmission ✓and takes longer to load onto a web page.✓
(ONE mark for the type and ONE mark for the explanation) (2 × 2) (4)
[25]

QUESTION 6

6.1
- Install the most recent update/patch of the webserver software
- Minimize the server functionality – disable services if it is not being used
- Disable FTP service if it is not being used
- Delete default data/scripts
- Increase logging verboseness
- Update permissions/ownership of files
- User accounts that are not being used should be removed from the server
- Disable windows guest account
- Administrator account should have a strong password
- User accounts should require a strong password
- Users should not have administrator's rights on their accounts
- Users and administrators should not share accounts
- Only the files used for the website should be stored in the website folder
- Website users should not be able to write files to the webserver without authentication
- Website folders should not be stored on the same partition as the operating system (Any 5 × 2) (10)

6.2 A controlled detour attack is also called a routing detour attack,✓ it happens when the attacker intercepts the message✓ that travels between the user and the web server✓ and redirects it✓ without the user or web server knowing about it.✓

When information travels across the internet it travels through a wide number of servers before it reaches its eventual destination.✓ If one of these servers has been compromised by an attack, the attacker can redirect the information that has been sent.✓Detours like this often send the information through the attacker's server✓ (where the information is recorded) before sending it back to the original location. Because the information still reaches the website it was intended for, the user will not become suspicious.✓ However, the attacker will have access to all the information being sent across the internet.✓ (Any 5 × 1) (5)

6.3 There is no extensive support in general available✓ for open source software and there is a lack of extensive technical support.✓ It is developed by numerous people so there is no clear idea of who can be held liable✓ if the program doesn't function properly✓ or causes damage to hardware.✓ Open source software could be abandoned✓ and updates are not always available.✓ (Any 3 × 1) (3)

6.4
- To secure communication between your website and your customer's internet browser.
- To secure email communications sent to and from your network (or private email address).
- To secure information between servers (both internal and external).
- To secure information sent and received via mobile devices. (Any 3 × 1) (3)

6.5 A brute force attack is a trial-and-error method✓ used to obtain information✓ such as a user password or personal identification number (PIN).✓ In a brute force attack, automated software✓ is used to generate a large number of consecutive guesses✓ as to the value of the desired data.✓ (Any 4 × 1) (4)
[25]

TOTAL SECTION B: 125
GRAND TOTAL: 150

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