

Indian Institute of Technology, Madras - BS in Data Science and Applications

Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

Question Paper Name :

IIT M FOUNDATION AN4 EXAM QPF4 16
JULY 2023

Subject Name :

2023 July: IIT M FOUNDATION AN4 EXAM
QPF4

Creation Date :

2023-07-10 18:54:05

Duration :

240

Total Marks :

705

Display Marks:

Yes

Share Answer Key With Delivery Engine :

Yes

Actual Answer Key :

Yes

Calculator :

Scientific

Magnifying Glass Required? :

No

Ruler Required? :

No

Eraser Required? :

No

Scratch Pad Required? :

No

Rough Sketch/Notepad Required? :

No

Protractor Required? :

No

Show Watermark on Console? :

Yes

Highlighter :

No

Auto Save on Console?

Yes

Change Font Color :

No

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

50

AppDev1

Section Id :	64065339061
Section Number :	11
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	16
Number of Questions to be attempted :	16
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	64065382520
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 216 Question Id : 640653577660 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL : MODERN APPLICATION

DEVELOPMENT I (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406531929063. ✓ YES

6406531929064. ✗ NO

Sub-Section Number :	2
Sub-Section Id :	64065382521
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 217 Question Id : 640653577661 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Which of the following statements is/are true?

Options :

6406531929065. ✗ HTTP headers (for example "Content-Type") are case-sensitive

6406531929066. ✗ The body/payload in an HTTP request is mandatory

6406531929067. ✓ The "Content-Length" header indicates the size of the request body in bytes

6406531929068. ✗ All of these

Question Number : 218 Question Id : 640653577669 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Consider a square matrix A given below.

$$A = \begin{bmatrix} 12 & 21 & 25 \\ 11 & 8 & 30 \\ 9 & 19 & 17 \end{bmatrix}$$

Matrix B is another matrix whose elements represent the LSBs of binary equivalent of corresponding elements of matrix A. The determinant of matrix B would be _____.

Options :

6406531929093. ✓ 0

6406531929094. ✗ 1

6406531929095. ✗ 2

6406531929096. ✗ 3

Question Number : 219 Question Id : 640653577671 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Consider the image given below.



Enter a valid email or phone number

[Forgot email?](#)

When a user enters an invalid email or phone number, an error message is displayed which clearly tells him/her about what went wrong. Which usability heuristic principle best describes the above behavior?

Options :

6406531929101. ✗ Aesthetic and minimalist design

6406531929102. ✖ User control and freedom

6406531929103. ✔ User diagnosis and recovery from errors

6406531929104. ✖ Flexibility and ease of use

Question Number : 220 Question Id : 640653577672 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Consider the given URL below.

```
https://www.host.com/tutorials/what-is-a-domain-name
```

Select the appropriate option that correctly identifies different components of a given URL.

Options :

```
Protocol: https
Domain: www
Sub-Domain: host.com
Path: /tutorials/what-is-a-domain-name
```

6406531929105. ✖

```
Protocol: https
Domain: www
Sub-Domain: host.com/tutorials
Path: /what-is-a-domain-name
```

6406531929106. ✖

```
Protocol: https
Domain: host.com
Sub-Domain: www
Path: /tutorials/what-is-a-domain-name
```

6406531929107. ✔

6406531929108. ✖

```
Protocol: https
Domain: host.com /tutorials
Sub-Domain: www
Path: /what-is-a-domain-name
```

Sub-Section Number : 3
Sub-Section Id : 64065382522
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 221 Question Id : 640653577662 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Let $L = \{'a', 'b', 'c', 'd', 'A', 'B', 'C', 'D', '0', '1', ' '\}$ be a complete character set (i.e., only these characters can be used to represent text in the document). If a document that uses fixed encoding for all characters is created using the character set L and has a disk size of 2 Kilobytes, the number of characters in the documents would be _____. [Take 1 Byte = 8 bits, 1 KB = 1000 Bytes, 1 MB = 1000 Kilobytes and so on.]

Options :

6406531929069. ✖ 2000

6406531929070. ✔ 4000

6406531929071. ✖ 8000

6406531929072. ✖ 16000

Question Number : 222 Question Id : 640653577664 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

A mobile client starts from and is cruising away continuously at 60 kmph from the network tower whose network range is 40 km and bandwidth is 120 Mbps. How much data (in Gigabytes) will be consumed by the client who is continuously using the entire bandwidth before completely moving out of the network?

[Take 1 Byte = 8 bits, 1 KB = 1000 Bytes, 1 MB = 1000 Kilobytes and so on.]

[Consider the speed of light in air to be 3×10^8 m/sec.]

Options :

6406531929077. ✖ 24

6406531929078. ✖ 28.8

6406531929079. ✔ 36

6406531929080. ✖ 288

Question Number : 223 Question Id : 640653577665 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will be the output of the following Python code snippet on the terminal.

```
from string import Template

temp = "A student needs to complete $c1 level to get to the {{c2}}
level."

temp = Template(temp)
out = temp.substitute({'c1':'foundation', 'c2':'diploma'})
print(out)
```

Options :

6406531929081. ✖

A student needs to complete \$c1 level to get to the diploma level.

6406531929082. ✓

A student needs to complete foundation level to get to the {{c2}} level.

6406531929083. ✖

A student needs to complete foundation level to get to the diploma level.

6406531929084. ✖

KeyError: 'c2'

Question Number : 224 Question Id : 640653577670 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 3
Question Label : Multiple Choice Question

Consider a `` element and the styling given to it in `<style>` tag using element selector in the HTML file below.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Span</title>
  <style>
    span{
      color: blue;
      Background-color: lime;
    }
  </style>
</head>
<body>
  <span id="my_span">MAD-I is a Diploma level course.
</span>
</body>
</html>
```

What will be the final style applied to `` tag if an additional style is added via the ID selector given below?

```
#my_span{
  width: 1200px;
  Background-color: lightpink;
}
```

Options :

6406531929097. ✓

```
color: blue;
Background-color: lightpink;
```

6406531929098. ✖

```
color: blue;
width: 1200px;
Background-color: lime;
```

6406531929099. ✖

```
color: blue;
width: 1200px;
Background-color: lightpink;
```

```
width: 1200px;  
Background-color: lightpink;
```

6406531929100. ✖

Question Number : 225 Question Id : 640653577674 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What is the correct sequence of working of Client-Server Architecture.

- a. The client asks for the IP address for the particular server from the Domain Name system.
- b. To that IP address, the client sends the request to the particular server with that port number that is specified to the particular application and then server responds
- c. The DNS server responds with the IP address.
- d. The response message is received by the client and based on that port number, the response packet is consumed by the application to which it belongs.

Options :

6406531929113. ✖ c → a → b → d

6406531929114. ✖ a → b → c → d

6406531929115. ✔ a → c → b → d

6406531929116. ✖ None

Question Number : 226 Question Id : 640653577675 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following HTML document.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
  <style>
    p {
      background-color: yellow;
      color: red;
      display: inline-block;
    }
    #id {
      border: 2px solid purple;
      color:blue ;
    }
    .class {
      background-color: aqua;
      color: red;
    }
  </style>
</head>
<body>
  <p class="class" id="id">HTML</p>
  <p class="class" >HTML</p>
  <p>HTML</p>
</body>
</html>

```

How will the browser render above HTML file?

Options :

HTML

HTML

HTML

6406531929118. ✖   

6406531929119. ✔   

6406531929120. ✖   

Question Number : 227 Question Id : 640653577676 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following Python code snippet.

app.py

```
from jinja2 import Template
import sys
input_list = sys.argv
Name, profession = input_list[1], input_list[2]

if input_list[1]=="Meera":
    profession="Data Analyst"
else:
    pass
template = """
<!DOCTYPE html>
<html>
    <div>
        {{Name}}
        {{Profession}}
    </div>
</html>
"""

t = Template(template)
print(t.render(Name = name, Profession = profession))
```

Map the commands in column A with the correct rendered output in the browser in column B.

Column A	Column B
a) python app.py Kartik Doctor	1) Meera Data Analyst
b) python app.py Meera Scientist	2) Ajay Singer
c) python app.py Ajay Singer	3) Kartik Web
d) python app.py Kartik Web Developer	4) Kartik Doctor
	5) Kartik Web Developer

Options :

6406531929121. ✖ a - 4, b - 1, c - 2, d - 5

6406531929122. ✖ a - 3, b - 2, c - 1, d - 4

6406531929123. ✔ a - 4, b - 1, c - 2, d - 3

6406531929124. ✖ a - 5, b - 1, c - 3, d - 2

Sub-Section Number :	4
Sub-Section Id :	64065382523
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 228 Question Id : 640653577663 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4.5

Question Label : Multiple Choice Question

Consider the following Python code snippet:


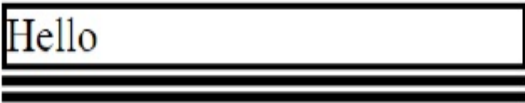


```

from pyhtml import *

code = html(
    head(style('div{border:2px solid black;margin: 2px;
width: 200px;}')),
    body(==== BODY CONTENT ====)
)
print(code.render())

```

If the text “==== BODY CONTENT====” is replaced by each option in column A and rendered, which of the following mapping between column A and Column B is correct?

Column A	Column B
a) div('Hello'),div(),div()	1) 
b) div(),div(div('Hello'))	2) 
c) div(div(div('Hello')))	3) 
d) div(div('Hello'),div())	4) 

Options :

6406531929073. ✖ a - 1, b - 3, c - 4, d - 2

6406531929074. ✔ a - 2, b - 3, c - 1, d - 4

6406531929075. ✖ a - 3, b - 1, c - 2, d - 4

6406531929076. ✖ a - 4, b - 2, c - 1, d - 3

Question Number : 229 Question Id : 640653577673 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

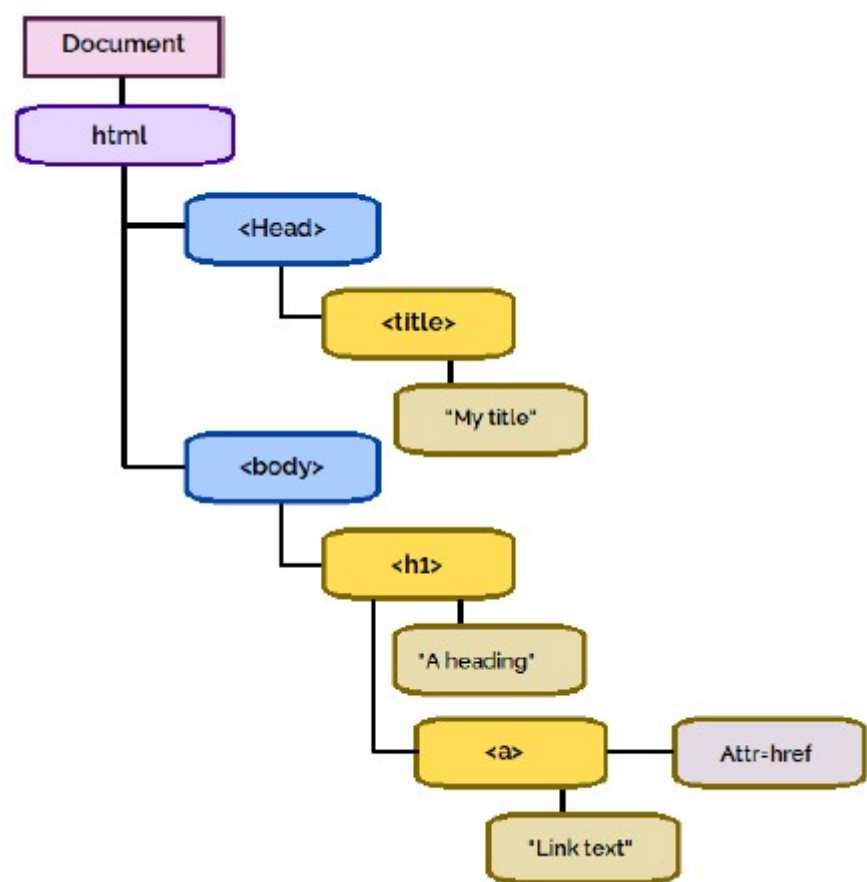
Correct Marks : 4.5

Question Label : Multiple Choice Question

Consider the following HTML document and select the DOM structure that correctly represents the HTML document.

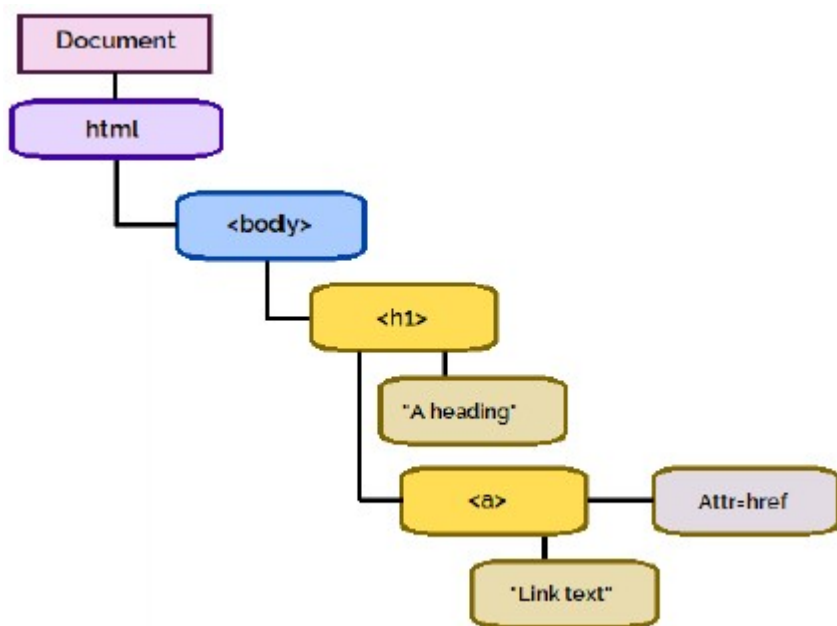
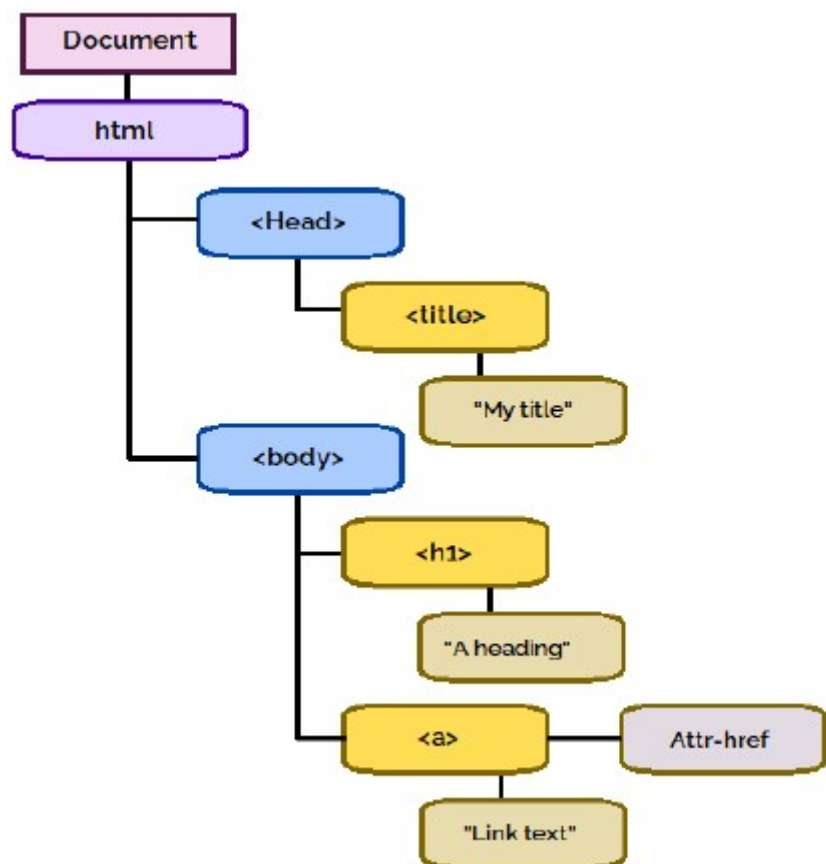
```
<!DOCTYPE html>
<head>
  <title>My title</title>
</head>
<body>
  <h1>A heading</h1>
  <a href="link">Link text</a>
</body>
</html>
```

Options :



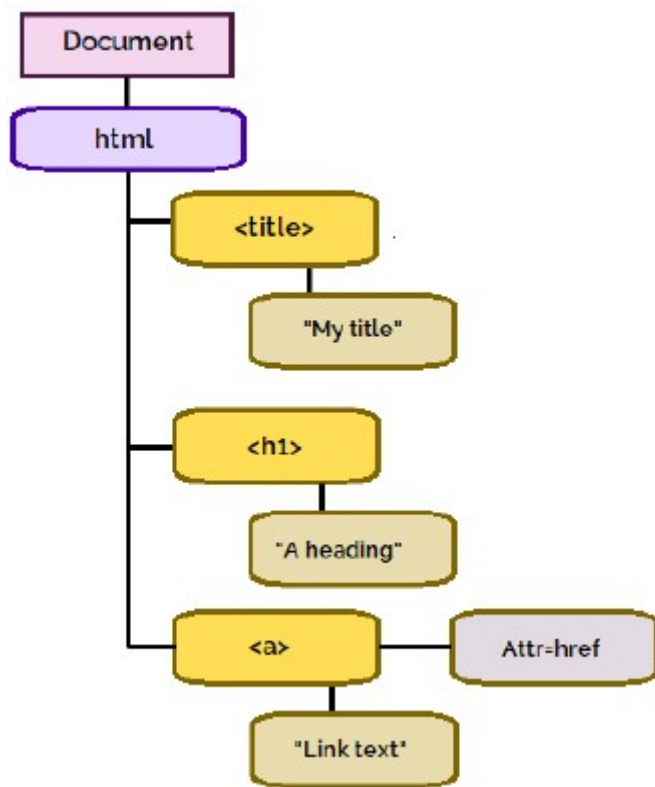
6406531929109. ✖

6406531929110. ✔



6406531929111. ✖

6406531929112. ✖



Question Number : 230 Question Id : 640653577677 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4.5

Question Label : Multiple Choice Question

Consider the following Python code snippet.

```

from jinja2 import Template

temp = """
    {% for vid, members in interfaces|groupby(attribute='lan') %}
        Interfaces in lan {{ vid }}: {{ members|map(attribute='name')
| join(', ') }}
    {% endfor %}
    """

interfaces = [
    {"name": "Ethernet1", "lan": 50},
    {"name": "Ethernet2", "lan": 40},
    {"name": "Ethernet3", "lan": 50},
    {"name": "Ethernet4", "lan": 60}
]

output = Template(temp)
print(output.render(interfaces=interfaces))

```

What will be the output of above python code on the terminal.

Options :

6406531929125. ✖

```

Interfaces in lan 50: Ethernet1
Interfaces in lan 40: Ethernet2
Interfaces in lan 50: Ethernet3
Interfaces in lan 60: Ethernet4

```

6406531929126. ✖

```

Interfaces in lan 40: Ethernet1, Ethernet3
Interfaces in lan 50: Ethernet2
Interfaces in lan 60: Ethernet4

```

6406531929127. ✖

```

Interfaces in lan 40: Ethernet2
Interfaces in lan 50: Ethernet1, Ethernet4
Interfaces in lan 60: Ethernet3

```

6406531929128. ✔

```

Interfaces in lan 40: Ethernet2
Interfaces in lan 50: Ethernet1, Ethernet3
Interfaces in lan 60: Ethernet4

```

Sub-Section Id : 64065382524

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653577666 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Question Numbers : (231 to 232)

Question Label : Comprehension

A Flask application and its absolute path is given below.

```
C:\home\mad_1>
```

app.py

```
from flask import Flask, url_for
import sys

def create_path():
    if len(sys.argv) < 2:
        return '/static'
    else:
        return f'/{sys.argv[1]}'

app = Flask(__name__, static_url_path = create_path())

@app.route('/home')
def display():
    return f"<h3>static url path: {app.static_url_path}</h3>\
    <h3>static folder: {app.static_folder}</h3>"

app.run(debug = True)
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 231 Question Id : 640653577667 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

If the application is run locally on <http://127.0.0.1:5000> using the command `python app.py`, what will be rendered by the browser for URL <http://127.0.0.1:5000/home?>

Options :

static url path: C:\home\mad_1\static

6406531929085. ✖ static folder: /static

static url path: /static

6406531929086. ✔ static folder: C:\home\mad_1\static

static url path: /stable

6406531929087. ✖ static folder: C:\home\mad_1\stable

static url path: /static

6406531929088. ✖ static folder: C:\home\mad_1\stable

Question Number : 232 Question Id : 640653577668 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4.5

Question Label : Multiple Choice Question

If the application is run locally on <http://127.0.0.1:5000> using the command `python app.py stable`, what will be rendered by the browser for URL <http://127.0.0.1:5000/home?>

Options :

- 6406531929089. ✖

static url path: /static

static folder: C:\home\mad_1\static
- 6406531929090. ✖

static url path: /stable

static folder: C:\home\mad_1\stable
- 6406531929091. ✖

static url path: C:\home\mad_1\stable

static folder: /stable
- 6406531929092. ✔

static url path: /stable

static folder: C:\home\mad_1\static

MLF

Section Id :	64065339062
Section Number :	12
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	15
Number of Questions to be attempted :	15
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	No