Grade 9 Computing

Unit 8 · Making Web Apps

WORKSHEET

Full marks 33

Name _____ Class _____ Roll no. ____ Date _____ Marks _____ / 33

1 Key words [4]

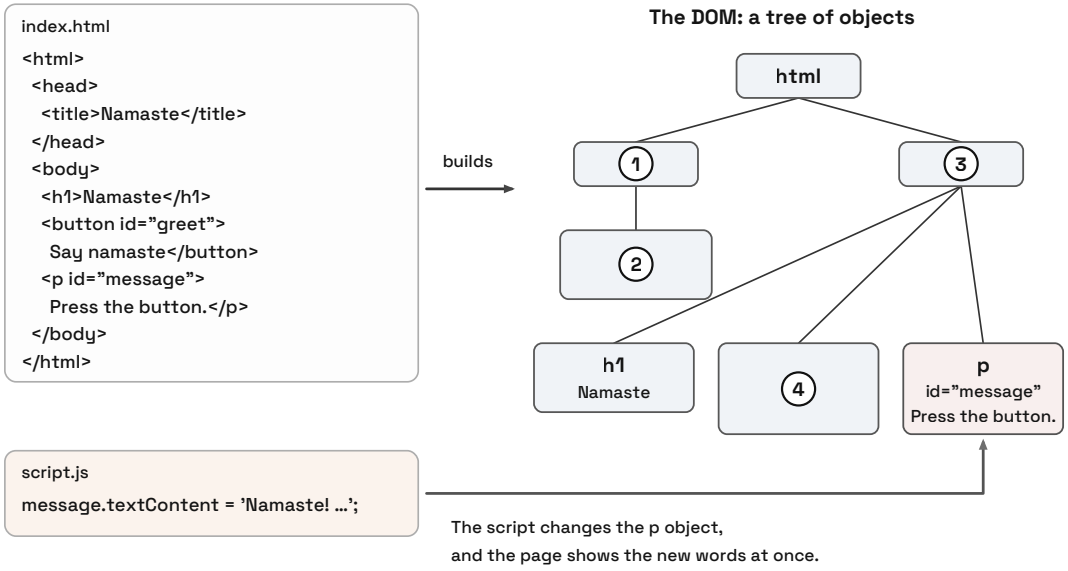
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

array	CSS	dark pattern	DOM	event	innerHTML	JavaScript	listener	NaN	specification

The language that says what a web page does is _____. The tree of objects that the browser builds from a page's HTML is the _____. Something that happens, such as a tap or a letter typed, is an _____, and the function the browser runs each time it happens is a _____. Python's list is JavaScript's _____. The result of `Number('abc')` is _____. A list of what an app must do, written so that it can be checked, is its _____. A trick that pushes people into a choice they might not make, such as a hidden "No thanks", is a _____.

2 Label the diagram [2]

The diagram shows the DOM the browser builds from a page's HTML. Write the object that belongs in place of 1 to 4. Each carries 0.5 mark.



1. _____ 2. _____

3. _____ 4. _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Why is `<script src="script.js"></script>` usually put just before `</body>`? [1]

a. Scripts only work at the bottom of a page.
b. So that the elements the script looks for are already on the page when it runs.
c. So that the user doesn't see the script.
d. Because the head may only hold CSS.

ii. `document.querySelector('#total')` gives `null`. What is the most likely reason? [1]

a. The page has no CSS.
b. No element on the page has `id="total"`: the id is missing, or spelled differently.
c. `querySelector` only finds buttons.
d. The total is 0.

iii. A program has `button.addEventListener('click', save);`. When does `save` run? [1]

a. once, as soon as the page loads
b. each time the button is clicked, however many times that is
c. only the first time the button is clicked
d. never, because `save` has no brackets

iv. Which is an **edge** test for an app that gives a grade from a mark out of 100? [1]

a. a mark of 63
b. a mark of exactly 100
c. the word "sixty"
d. a mark of -5

v. A ticket app has a big "Accept and continue" button in bright color and a tiny pale "No thanks" link that is hard to find. Which value of responsible design does it fail? [1]

a. privacy
b. honesty: it is a dark pattern
c. correctness
d. speed

4 What does it print? [3]

Write exactly what the program prints in the console, in the box under it.

```
1 const plates = '3';
2 const price = 120;
3 console.log(plates * price);
4 console.log(plates + price);
5 console.log(Number(plates) + price);
6 console.log(Number('') + price, Number('abc') + price);
```

OUTPUT

5 Trace the program [4]

Fill in the trace table: one row for each time round the loop, then what the program prints. The first row shows the values before the loop.

```
1  const prices = { momo: 120, chiya: 25, lassi: 60 };
2  const orders = ['momo', 'chiya', 'momo', 'lassi'];
3  let bill = 0;
4  for (const item of orders) {
5    bill = bill + prices[item];
6    if (bill > 250) {
7      console.log('Over 250 at ' + item);
8    }
9  }
10 console.log('Bill: Rs ' + bill);
```

item	bill	Output
(before)	0	

6 Find and fix the bugs [3]

Read the program, then answer.

A page has a box `<input id="plates">`, a button `<button id="go">Price</button>` and `<p id="answer" role="status"></p>`. A plate costs Rs 120, and there is a service charge of Rs 30 a bill.

```
1  const box = document.querySelector('#plates');
2  const answer = document.querySelector('#answer');
3  function price() {
4    const plates = box.value;
5    answer.textContent = 'Rs ' + plates * 120 + 30;
6  }
7  document.querySelector('#go').addEventListener('click', price());
```

i. When the page opens with 3 in the box, it shows `Rs 36030` at once, and pressing the button does nothing. Which line is wrong? Write it correctly.

ii. Why does it show `Rs 36030`, not Rs 390? Write lines 4 and 5 correctly.

7 Write JavaScript [4]

Write the program on the lines. Any program that gives the right result gets the marks.

Write these Python lines in JavaScript.

```
marks = [72, 65, 80]
total = 0
for m in marks:
    total = total + m
if total > 200:
    print("Well done")
else:
    print("Keep going")
```

8 Long answer [4]

Write a long answer to the following question.

Here is a test table for a converter from kilograms to dharni, a measure of weight used in Nepal's markets (the app takes 1 dharni as 2.4 kg), with its results. Evaluate the app: is it correct, and what should the team do next?

Test	Should show	Did show
24 kg	10 dharni	10 dharni
7 kg	2.92 dharni	2.916666666666667 dharni
empty box	"Type a weight in kg"	0 dharni
-5 kg	"Type a weight in kg"	-2.0833333333333335 dharni

9 Short answer [2]

Write a short answer to the following question.

Why should a web app show what a user typed with `textContent` and not `innerHTML`? Why must a website check a password on its server, not only in the page's JavaScript?

10 Think [2]

Think, then answer.

A momo shop's ordering app adds a Rs 10 "donation to the temple" to every bill. The box for it is already ticked, in small gray text at the bottom. The owner says, "It is for a good cause, and anyone can untick it." Is this good design? Give your reasons.

11 Activity: Test the converter (not marked)

At a computer or phone, open the unit's page (the QR code) and find the activity **Indian rupees into Nepali**, which takes 1 Indian rupee as 1.6 Nepali rupees. Before running each test, write what it should show. Then run it and fill in the rest.

Test (Indian rupees)	Ordinary, edge or wrong?	Should show	Did show	Pass?
100				
33				
0.1				
(empty box)				
-50				
a test of my own				