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ENGI1020: Introduction to Programming  
Mid-term test  
12 Feb 2020

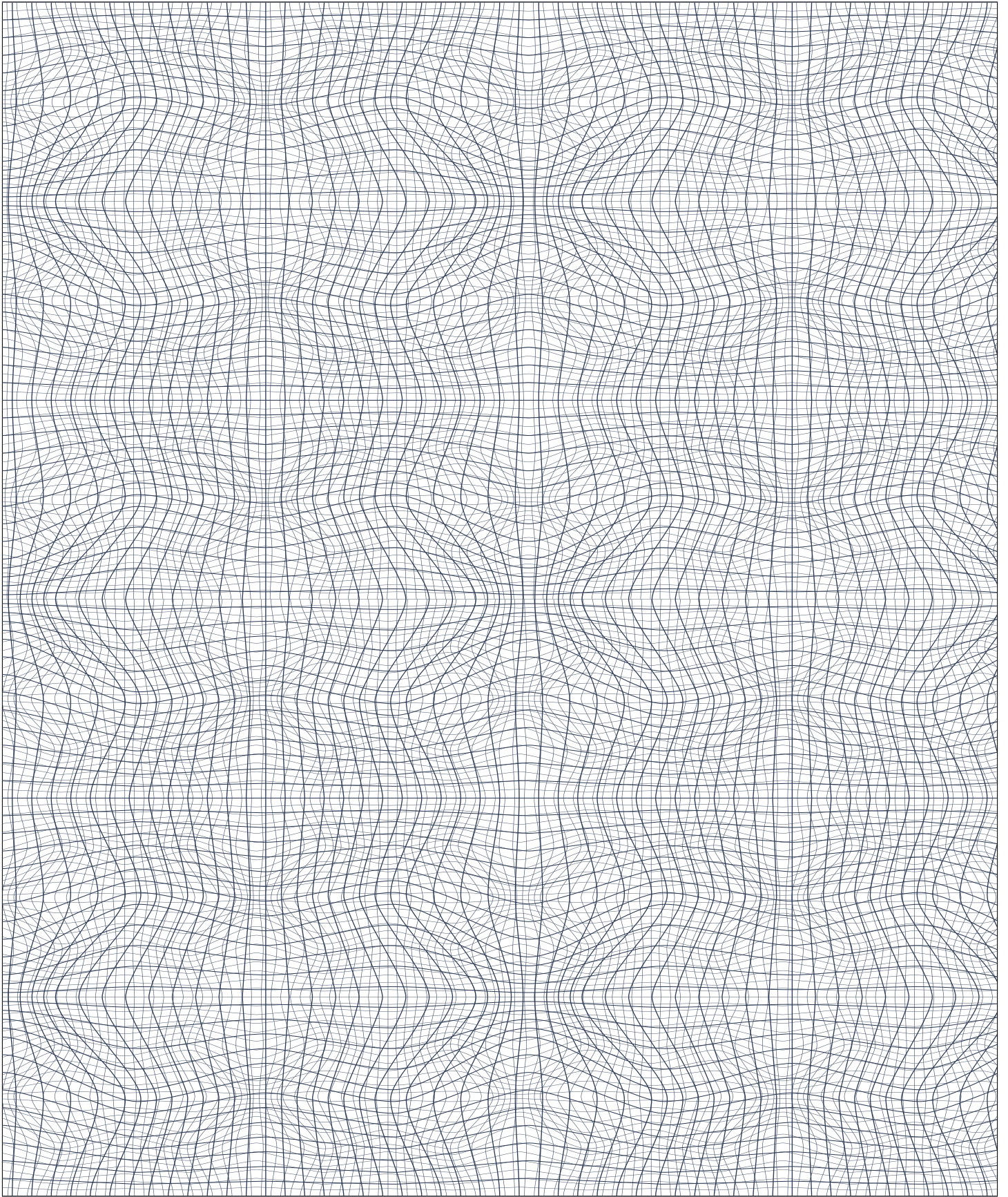
Name:

Student ID:

**Instructions**

1. Answer all questions.
2. Write your answers in the space provided on this paper.
3. Write your student number at the top of every answer page.
4. This is a closed-book exam: written aids are not permitted.
5. Calculators, phones and all other electronic aids are not permitted.
6. Unless otherwise specified, all code listed in this exam compiles and executes correctly.

Question:	1	2	3	4	5	Total
Points:	10	8	12	8	12	50
Score:						



## Programming concepts

1. Match the terms on the left to their definitions on the right. There are more definitions than terms: only match each term (a through j) **once**.

10

- |               |       |   |
|---------------|-------|---|
|               | _____ | Boolean value that determines which way control will flow |
|               | _____ | Combination of values and operators that can be evaluated |
|               | _____ | Decisions made as a program executes                      |
| a. algorithm  | _____ | Grammatical rules of a language                           |
| b. comment    | _____ | Ignored by the language; only for people                  |
| c. condition  | _____ | Meaning   |
| d. expression | _____ | Name reserved by the language itself                      |
| e. keyword    | _____ | Place in memory to hold a value                           |
| f. literal    | _____ | Programmer-chosen name                                    |
| g. operator   | _____ | Step-by-step procedure with decisions                     |
| h. syntax     | _____ | Tells you a value's size, interpretation and operations   |
| i. type       | _____ | Value passed into a function                              |
| j. variable   | _____ | Value that means exactly what's written                   |

2. Programming types

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What type(s) of variable (e.g., integer) would you choose to represent each of the following values? **Justify your choice** in a few words (complete sentences not required). There may be more than one correct answer.

(a) Cost of an airline ticket

1

.....

(b) Prediction of how much snow we'll get next week

1

.....

(c) The probability of a snowstorm tomorrow

1

.....

(d) Your name

1

.....

(e) Whether or not you'll pass this exam

1

.....

(f) An analog sensor reading from an Arduino

1

.....

(g) A student's grade in a course

1

.....

(h) A compass direction

1

.....

## Program analysis

3. Determine how the following Python code will behave.

[12]

(a) What will the following Python script print when it is run?

4

```
print(type(1))
print(type(1 / 2))
print(type(1 % 2))
print(type(1.0))
```

.....  
.....  
.....

(b) What will the following Python script print when it is run?

8

```
x = 100
y = 50
z = x / y

print(x, y, z)

x -= 25

if x % 10 == 0:
    z *= 2
elif y > z:
    y /= 2

print(x, y, z)

x -= 25

if x % 10 == 0:
    z *= 2
elif y > z:
    y /= 2

print(x, y, z)
```

.....  
.....  
.....  
.....  
.....



