MCS 173 PYTHON PROGRAMMING CAT 1 DATE:26/11/2020 TIME:2-4PM

Maximum Marks:20

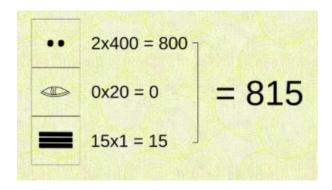
The **Mayan civilisation** had settled in the region of Central America from about 2000 BCE. The importance of astronomy and **calendar calculations in Mayan society** required mathematics and the Maya constructed quite early a very sophisticated number system, **Vigesimal – Base 20 Number System**. The Mayan and other Mesoamerican cultures used a vigesimal number system based on **base 20**, and positional: units, tens, hundreds (and so on) were read as descendant progressive powers of 20, instead of 10 like we do with our decimal system.

The symbols and Mayan number chart

	•	• •	• • •	••••
0	1	2	3	4
	<u>.</u>	<u></u>	• • •	••••
5	6	7	8	9
	<u>-</u>	<u>••</u>	• • •	••••
10	11	12	13	14
	<u>-</u>	••	• • •	••••
15	16	17	18	19

For example

815 is equivalent to $(2 \times 20^2) + (0 \times 20^1) + (15 \times 20^0)$



Converting 3575 from base 10 to base 20.

$$20^{5}-1$$

$$20^{5}-10$$

$$3575+400=8$$

$$20^{5}-10$$

$$20^{5}-10$$

$$20^{5}-10$$

$$375+10=18$$

$$15+1=15$$

$$20 | 375 - 10 | 18$$

$$15+1=15$$

$$20 | 375 - 10 | 18$$

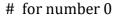
$$15+1=15$$

$$16 | 0 - 15 | 16$$

$$15+1=15$$

You are fond of numerical systems and Mayan number systems is something you admire. Write a python script which accepts a positive integer converts it into Mayan numerical system.

Use the following symbols





For

use o (small case o)

For use - (single hyphen)

Example when input is 815 output is a list containing the symbols ["o o","- - -"] If input is 37 then output is the list ["o"," "o o - - -"].

Test your program with following input

- 1. 4285
- 2. Your registration number
- 3. Number generated by addition of your birth year and date(for ex 1977+22=1999)

Instructions:

- 1. Upload your python script along with screenshot for all the three inputs.
- 2. Mention your registration number, birth year and date as a comment
- 3. Keep your video on throughout the examination
- 4. You are bound by the code of ethics and discipline, do adhere to it.
- 5. For any clarification contact your evaluator.

Rubrics

3 test inputs 3 marks each 3x3=9marks Validation of input (ie it is a valid positive integer) – 2marks Code -appropriate use of concepts – 7 marks Programming standards – 2 marks