Estd. 1861

# BOYS' HIGH SCHOOL AND COLLEGE
## THIRD TERM EXAMINATION (2023-24)
## ROBOTICS (RAI)
## CLASS – IX

**Time: 2:00 hrs**

**General Instructions:**

- Answers to this Paper must he written on the paper provided separately.
- The time given at the head of this Paper is the time allowed for writing the answers.
- This Paper is divided into two Sections.
- Attempt **all** questions from Section A and any **four** questions from Section B.
- The intended marks for questions or parts of questions are given in brackets **[ ]**.

**Section A [40 marks]**
(Attempt **ALL** Questions)

**Question 1: Multiple Choice Questions [20*1 marks]**

A) What will be the value of the following Python expression?

10 / 2 * 3 ?

a) 15
b) 30
c) 5
d) 1

B) Which of the following are not known as universal gates?
a) NAND & NOR
b) EX-NOR & XOR
c) Both A and B
d) None of the above mentioned

C) The decimal equivalent of the octal number $(312)_8$ is _____

a) $(201)_{10}$
b) $(202)_{10}$
c) $(210)_{10}$
d) $(203)_{10}$

D) The equivalent of the decimal number $(80)_{10}$ is $(?)_3$

a) 2022
b) 2202
c) 2222
d) None of the above mentioned.

E) A NOR gate means.

a) Inversion followed by an OR gate
b) OR gate followed by an inverter
c) NOT gate followed by an OR gate
d) NAND gate followed by an OR gate

F) Data Analysis is a process of?
a) inspecting data
b) cleaning data
c) transforming data
d) All of the above

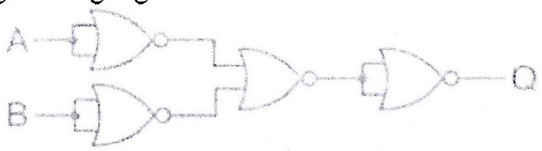
G) which is not an Armstrong number.

a) 1634
b) 370
c)371
d) 9475

H) Which of the following is not a logic gate?

a) AND
b) OR
c) IF
d) NOT

I) What will be the output of the given logic gate?




a) NOR
b) NAND
c) AND
d) OR

J) A NAND gate means

a. Inversion followed by AND gates
b. AND gates followed by an inverter
c. AND gate followed by OR gate
d. None of these

K) Suppose the output of an XNOR gate is 1. Which of the given input combination is correct?

a) A = 0, B' = 1
b) A = 1, B = 1
c) A = 0, B = 1
d) A = 0, B = 0

L) Study the following program: What will be the output of this statement?

```
i = 0
while i < 5:
    print(i)
    i += 1
    if i == 3:
        break
else:
    print(0)
```

a) 1 2 3
b)0 1 2 3
c)0 1 2
d)3 2 1

M) Study the following code: What will be the output of this code?

```
str1="pythonpoint"[6:]
print(str1)
```

a) point
b) pythonpoint
c) python
d)None of these

N) Study the following program: What will be the output of this program?

```
a = '1 2'
print(a * 2)
print(a * 0)
print(a * -2)
```

a)1 2 1 2
b)2 4
c)0
d) -1 -2 -1 -2

O) Which of the following keywords is used for function declaration in Python language?

a)def
b)function_name
c)define
d)None of the these

P) When a user does not use the return statement inside a function in Python, what will return the function in that case.

a)0
b)1
c)None
d)No output

Q) What are the values of the following Python expressions?

```
2**(3**2)
(2**3)**2
 2**3**2
```

a) 512, 64, 512
b) 512, 512, 512
c) 64, 512, 64
d) 64, 64, 64

R) What arithmetic operators cannot be used with strings in Python?
a) *
b) –
c) +
d) All of the mentioned

S) What will be the output of the following code snippet?

```
print(2**3 + (5 + 6)**(1 + 1))
```

a) 129
b) 8
c) 121
d) All of the mentioned

T) Identify the type of learning in which labeled training data is used.
a) Semi unsupervised learning
b) Supervised learning
c) Reinforcement learning
d) Unsupervised learning

**Question 2: Short Answer Questions [10*2 Marks]**

A) What do you understand about machine learning.

B) What do you understand about deep learning.

C) What is Supervised learning.
D) What is Unsupervised learning.
E) Explain the difference between supervised and unsupervised learning?
F) What is reinforcement learning.
G) Design a logic diagram of EX-NOR Gate with expression and truth table.
H) What is string. List out any 4 functions of string with suitable example.
I) What is the purpose of the break statement in python.
J) What is the purpose of the Continue statement in python.

**Section B [60 Marks]**
**(Attempt ANY FOUR out of SIX Questions)**

3. Write a python program to print all the prime number between 1 to n using ***for*** loop, ***break*** and ***continue.*** The value of n will be input from keyboard. N>=300. Also count the sum of all those prime numbers and print the sum as well as numbers.

4. What is Armstrong number explain with suitable example Write a python program to print all the Armstrong numbers between 100 and 999.

5. What is function explain its type. Write a python program using the function to print Fibonacci series upto n number where n is taken by user.

6. Write a python program to print the following patterns.

```
$***$
*$ $*
* $ *
*$ $*
$***$
```

```
0
1 2
3 4 5
6 7 8 9
```

7. How to use the slicing operator in Python? Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument. (using while loop).

8. Explain join() and split() functions in Python. Write a python program to print the table of any given number n. where n is taken by user input.

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