



BOYS' HIGH SCHOOL AND COLLEGE
FIRST TERM EXAMINATION (2024-25)
CLASS - IX
ROBOTICS

Time: 2:00 hrs

General Instructions:

- Answers to this Paper must be 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

[20X1 Marks]

- A) Who developed Python Programming Language?
- Wick van Rossum
 - Rasmus Lerdorf
 - Guido van Rossum
 - Niene Stom
- B) $(B35)_{16}$ Convert into octal $(?)_8$.
- 6454
 - 4564
 - 5465
 - 5464
- C) Which company has developed ChatGPT?
- Tesla
 - SpaceX
 - OpenAI
 - Google
- D) What is the goal of Artificial Intelligence?
- To solve artificial problems
 - To extract scientific causes
 - To explain various sorts of intelligence
 - To solve real-world problems
- E) Which of these is a type of data?
- Quantitative
 - Qualitative
 - Both A & B
 - None of these
- F) Which of these statements is true?
- Information is a part of data.
 - Data is a part of information.
 - Data and information are opposite in nature.
 - None of the above
- G) Which of the following are known as universal gates?
- NAND & NOR
 - AND & OR
 - XOR & OR
 - EX-NOR & XOR

H) The octal equivalent of the decimal number $(417)_{10}$ is _____

- $(641)_8$
- $(619)_8$



- c) (640)₈
- d) (598)₈

I) The equivalent of the decimal number (60)₁₀ is (?)₄

- a) 33
- b) 330
- c) 220
- d) 60

J) 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

K) Which one of the following is not the graphical representation of statistical data:

- a) Bar graph
- b) Scatterplots
- c) Pie chart graph
- d) Cumulative frequency distribution

L) If the outcome at any decision stage is unique and known for the problem, then the Dynamic programming problem is known as:

- a) Probabilistic dynamic programming problem
- b) Stochastic dynamic programming problem
- c) Static dynamic programming problem
- d) Deterministic dynamic programming problem

M) What is the main purpose of General Data Protection Regulation (GDPR)?

- a) To protect people's personal information.
- b) To help police, doctors, the army, etc., to get information.
- c) To help everyone find information.
- d) All of the above.

N) What is data privacy?

- a) Data privacy is the protection of personal data
- b) Users who should not have access to it
- c) The ability of individuals to determine who can access their personal information
- d) All of the above mentioned.

O) What is personal data?

- a) Information that relates to a specific person
- b) It can't be access by unauthorized people
- c) Both A and B
- d) None of the above mentioned

P) Among which of the following is a component of data privacy?

- a) Management of data risk
- b) Data loss prevention
- c) Password management
- d) All of the above mentioned

Q) Which of the following is not in DIKW Model?

- a) Work
- b) Information
- c) Data
- d) Knowledge

R) Python and C programming files are saved with the extension as ...?

- a) .pe and .c
- b) .py and .cpp
- c) .py and .c

- d). python and .c
- S) IDLE stands for ...?
 - a) Integrated Development and Learning Environment.
 - b) Interactive Development and Learning Environment.
 - c) Integrated Debugging and Learning Environment.
 - d) Interactive Debugging and Learning Environment.
- T) Data Analysis is a process of?
 - a) inspecting data
 - b) cleaning data
 - c) transforming data
 - d) All of the above

Question 2: Short Answer Questions

[10X2 Marks]

- A. Describe data and its types.
- B. Explain the difference between discrete and continuous data.
- C. Describe the hierarchy of the DIKW model with suitable diagram.
- D. Describe the stages of the Data Analysis process.
- E. State any 5 methods of data acquisition.
- F. Explain Robot Cheetah.
- G. Explain Daksh robot.
- H. Design a logic circuit diagram to implement AND Gate using NAND and OR Gate using NOR Gate.
- I. Deterministic vs probabilistic systems? Explain
- J. Is a robot a computer? Explain

Section B

[60 Marks]

(Attempt ANY FOUR out of SIX Questions)

- 3A. What are the three Laws of Robotics? [3]
- 3B. Design a logic diagram of XOR Gate with expression and truth table. [3]
- 3C. Write a program to take two inputs from the user and swap them using Python and C both programming language (without using third var). [9]
- 4A. Give 4 differences between Robots and Machines. [3]
- 4B. With the help of diagram show that step by step process of converting high level language to machine level language. [3]
- 4C. Write a Python program to take inputs from users and perform simple arithmetic operations (Add, Sub, Div, Mul) and show the output. [9]
- 5A. What are bio-inspired robots and explain 4 examples of bio-inspired robots? [3]
- 5B. Design a logic circuit diagram to implement AND Gate using NOR gate. [3]
- 5C. Write a Python program to check whether a number entered by the user is even or odd. [9]
- 6A. Explain Defence Robot. Discuss advantages and disadvantages. [3]
- 6B. Design a logic circuit diagram to implement OR Gate using NAND gate. [3]
- 6C. Write a Python program to input 5 subjects marks from user and outputs average marks. [9]
- 7A. Challenges encountered in the implimentation of robots? Explain atleast 3 challenges. [3]
- 7B. Explain the Turing Test. It's uses and importance. [3]
- 7C. Write a Python program to calculate the compound interest. All inputs must be taken from the user. [9]
- 8A What are Underwater Robots? Give some applications of Underwater Robots. [3]
- 8B. What is Artificial intelligence? Explain any three Advantages and Disadvantages of AI. [3]
- 8C. Write a program that converts Celsius to Fahrenheit using python and c both languages. [9]
