AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X

ANNUAL EXAMINATIONS (THEORY) 2024

Computer Science Paper II

Time: 1 hour 50 minutes   Marks: 25

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign if it is accurate.

> **I agree that this is my name and school.**
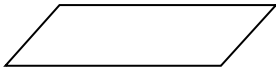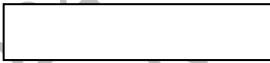> **Candidate's Signature**

RUBRIC

2. There are SIX questions. Answer ALL questions. Questions 5 and 6 each offer TWO choices. Attempt any ONE choice from each.

3. When answering the questions:

    Read each question carefully.
    Use a black pointer to write your answers. DO NOT write your answers in pencil.
    Use a black pencil for diagrams. DO NOT use coloured pencils.
    DO NOT use staples, paper clips, glue, correcting fluid or ink erasers.
    Complete your answer in the allocated space only. DO NOT write outside the answer box.

4. The marks for the questions are shown in brackets ( ).

5. You may use a simple calculator if you wish.

Q.1. (Total 2 Marks)

Consider the given table.

	Description	Flowchart Symbol
A	All the calculations appear inside this symbol.	(circle)
B	It is used to connect various flowchart symbols.	(parallelogram)
C	It is used to represent input and output in a flowchart.	(rectangle)
D	It is used to connect one part of flowchart with another on the same page.	(arrow)

Identify the CORRECT flowchart symbol for each description in the given table.

Description	A	B	C	D
Flowchart Symbol				

Q.2. (Total 3 Marks)

A C program is written to take three angles of a triangle as an input and identify whether the formation of triangle is possible or not.

Complete the missing part in the program to achieve the given task.

```
#include <stdio.h>
int main() {
  float a1, a2, a3, sum;
  printf("Enter three angles of a triangle: \n");
  scanf("%f %f %f", &a1, &a2, &a3);




return 0;
}
```

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Q.3.   (Total 3 Marks)

Consider the following C program.

```c
#include <stdio.h>
int main() {
int x=14;
int y=20;
  while (y>x)
   {
    printf("\n%d", x);
    x+=2;
   }
  return 0;
}
```
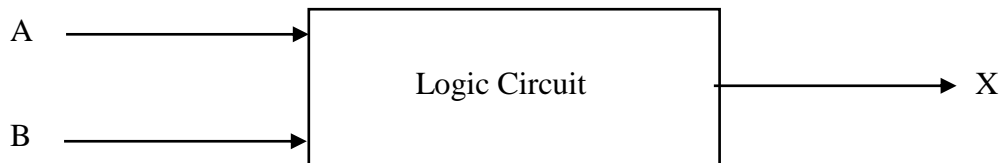
Complete the trace table for the given program.

x	y	Output
14	20	

Q.4.   (Total 5 Marks)

In the given diagram, two switches (A and B) send values to a logic circuit giving X as the output.

A ────────────────▶ ┌──────────────────────┐
                     │   │
                     │   Logic Circuit   │ ──────────▶ X
                     │   │
B ────────────────▶ └──────────────────────┘

X has a value of 1 with the following conditions:

┌──┐
│ Switch A sends value 1 OR switch B sends value 0   │
│   AND   │
│ Switch A sends value 0 OR switch B sends value 0   │
│   AND   │
│ Switch A sends value 1 OR switch B sends value 1   │
└──┘

i.   Draw the logic circuit to represent the given conditions.   (3 Marks)

┌──┐
│ **Space for Logic Circuit**   │
│   │
│   │
│   │
│   │
│   │
│   │
│   │
│   │
│   │
│   │
│   │
└──┘

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ii.   Complete the truth table for the logic circuit drawn in part i.   (2 Marks)

(**Note**: Show your working in the given space, marks will be awarded accordingly.)

A	B	Working Space	X
0	0		
0	1		
1	0		
1	1		

Q.5. (Total 6 Marks)

EITHER

a. Write a C program to take a year as an input, identify and print whether the inputted year is a leap year or not.

OR

b. Write a C program to print the first ten numbers of Fibonacci series using **for loop**.

(**Fibonacci series**: 0 1 1 2 3 5 8 13 21 34 . . .)

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Q.6.   (Total 6 Marks)

EITHER

a.   You are a business owner running a small online store. You have just heard about a recent cyber-attack on a similar online store that resulted in customer data theft and financial losses.

    i.   Describe in THREE points why computer security is vital for your business?   (3 Marks)

    ii.   Describe THREE specific computer security measures or practices that you would implement to protect your online store from cyber threats.   (3 Marks)

OR

b.

    i.   Describe computer virus.   (2 Marks)

    ii.   Give any FOUR ways by which a virus can spread in a computer system.   (4 Marks)

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