

AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X

ANNUAL EXAMINATIONS (THEORY) 2023

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)

Write the name and draw the flowchart symbol in front of each description in the given table.

Description	Name	Flowchart Symbol
All the calculations appear inside this symbol.		
It is used to connect various flowchart symbols.		

Q.2. (Total 3 Marks)

A C program is written to take three integers with different values as an input and also identify the largest number amongst them.

Write the missing code in the given box to achieve the mentioned task.

```
#include <stdio.h>
int main() {
    int n1, n2, n3;
    printf("Enter three different numbers: \n");
    scanf("%d %d %d", &n1, &n2, &n3);
```

```
return 0;
}
```

Q.3.

(Total 3 Marks)

Consider the following C program.

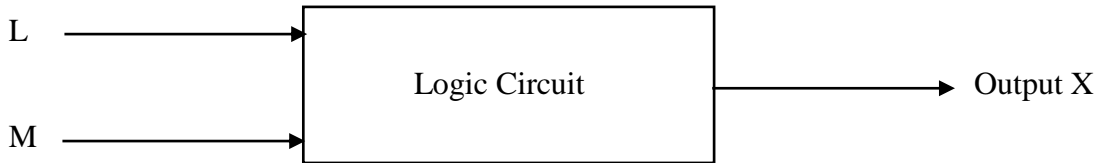
```
#include <stdio.h>
int main() {
int m=27;
int n=36;
do
{
printf("\n%d", n);
n-=3;
}
while (m<n);
return 0;
}
```

Complete the trace table for the given program.

M	n	Output
27	36	

Q.4. (Total 5 Marks)

Two switches, L and M, send values of 0 and 1 to a logic circuit respectively. Value X is the output of the logic circuit.



Output X has a value of 1 with the following conditions:

- Switch L sends value 1 AND switch M sends value 0
- OR
- Switch L sends value 0 AND switch M sends value 0
- OR
- Switch L sends value 1 AND switch M sends value 1

i. Draw the logic circuit to represent the given conditions.

Space for Logic Circuit

ii. Complete the truth table for the logic circuit drawn in part i.

(Note: Show your working in the given working space. Without working NO mark will be awarded.)

L	M	Working Space	X
0	0		
0	1		
1	0		
1	1		

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Q.5.

(Total 6 Marks)

EITHER

a. Write a C program to print the salary of an employee according to the given conditions.

(Note: Take years of service and gender as an input.)

Gender	Years of Service	Salary
Male	≥ 5	150000
	< 5	100000
Female	≥ 5	200000
	< 5	150000

OR

b. Write a C program to

- take a number 'n' as an input.
- print 'n' even numbers.
- print the sum of those even numbers.

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Q.6. (Total 6 Marks)

EITHER

- a.
 - i. Describe authentication and authorisation. (2 Marks)
 - ii. Describe TWO methods for Two Factor Authentication (2FA). (4 Marks)

OR

- b. Describe the following types of hackers:
 - i. White Hat Hacker (2 Marks)
 - ii. Black Hat Hacker (2 Marks)
 - iii. Green Hat Hacker (2 Marks)

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