AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X

ANNUAL EXAMINATIONS 2022

Computer Science

Total Time: 1 hour 40 minutes

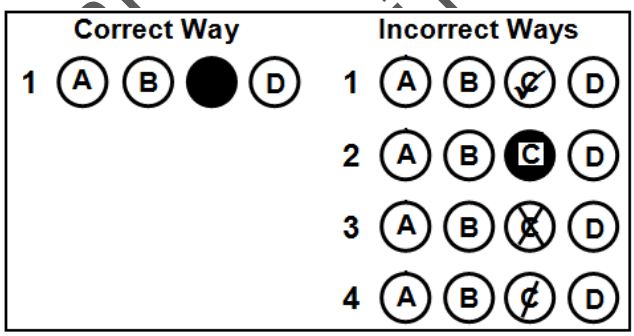
Total Marks: 50 (40-Theory & 10-Alternate to Practical)

INSTRUCTIONS

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 50 only.
4. Question Distribution:

Theory	Alternate to Practical
40 MCQs	10 MCQs

5. In each question, there are four choices A, B, C, D. Choose ONE. On the answer grid, black out the circle for your choice with a pencil as shown below.



Candidate's Signature

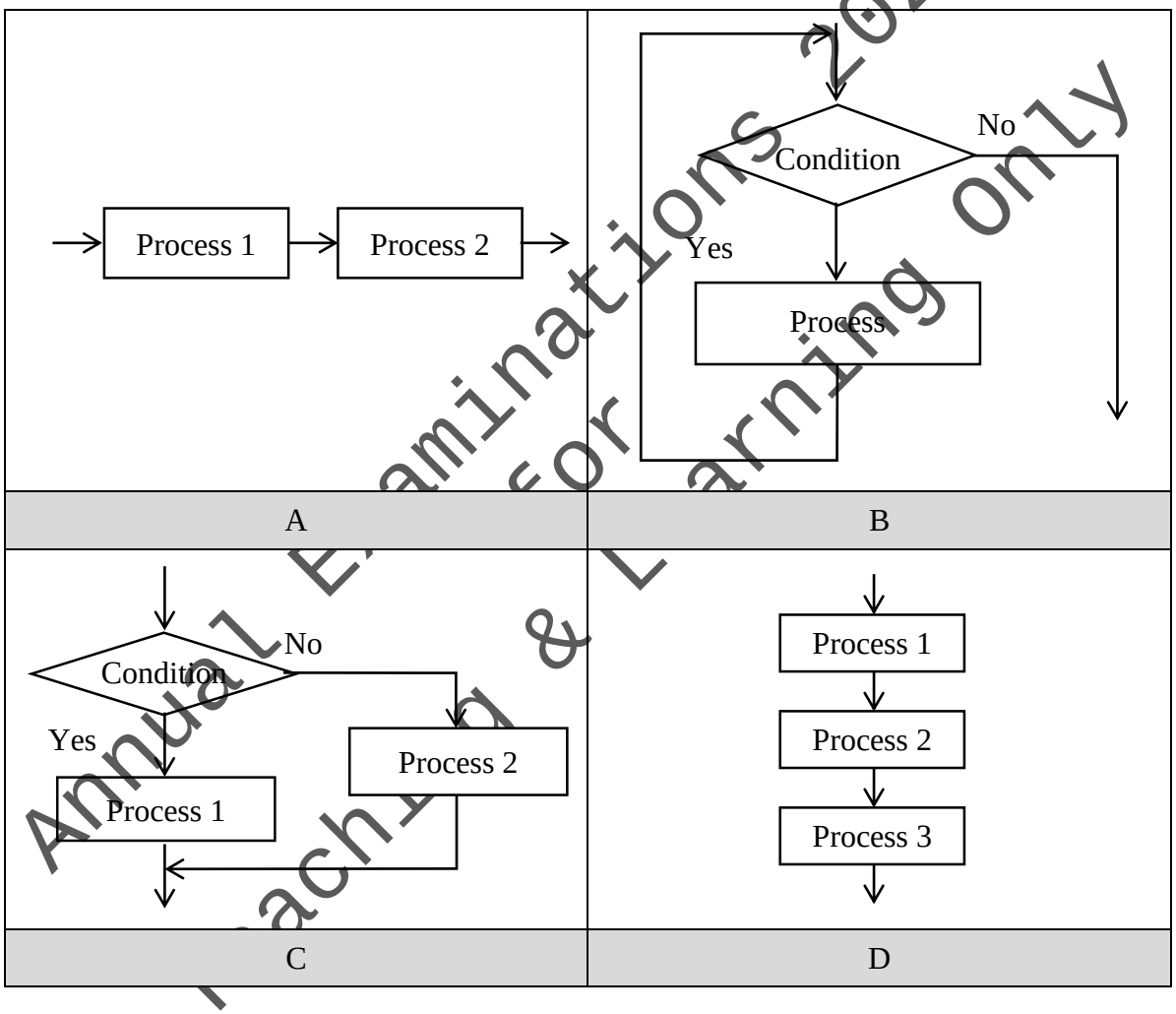
6. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
7. DO NOT write anything in the answer grid. The computer only records what is in the circles.
8. The marks obtained on the 40 MCQs will be equated to the total marks of 65 for the theory examination results.
9. You may use a simple calculator if you wish.

THEORY (Questions 1-40)

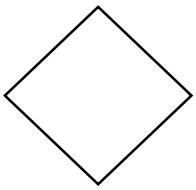
1. If a flowchart continues on the next page, then the symbol used to join the flowchart is

   A. Terminal.
   B. Flow Lines.
   C. On-Page connector.
   D. Off-Page connector.

2. The figure that shows the iteration control structure of flowchart is



3. Consider the given flowchart symbol.



The flowchart symbol is used to represent the

A. decision in a flowchart.
B. processing in a flowchart.
C. input and the output in a flowchart.
D. starting and the ending in a flowchart.

4. Consider the given statement.

PRINT A, B

The flowchart symbol that must have this statement is

A. output.
B. process.
C. decision.
D. terminator.

5. Read the following actions:

- Find out what the problem asks to do.
- Carefully read the problem to understand it.
- What information can be obtained from the problem?
- Find out requirements for the solution of the problem.

The step of problem solving process in which these actions are performed is

A. defining the problem.
B. analysing the problem.
C. generating solutions of the problem.
D. selecting the best solution of the problem.

6. In problem solving, the factors on which the selection of final solution should be based are

I. cost
II. speed
III. repetition
IV. complexity

A. II and III.
B. I, II and III.
C. I, II and IV.
D. II, III and IV.

7. Consider the given algorithm.

```
Step 1: Start
Step 2: A=10
Step 3: B=6
Step 4: C=A%B
Step 5: X=C*B
Step 6: B=B+2
Step 7: IF B<10 THEN GOTO Step 4
Step 8: Output X
Step 9: Stop
```

The output of this algorithm is

A. 10
B. 12
C. 16
D. 24

8. Consider the given algorithm.

```
Step 1: Start
Step 2: Let the number X be 5 and Y be 3
Step 3: Initialize P=1 and Q=0
Step 4: P=P*X
Step 5: Q=Q+1
Step 6: If Q≤Y Then GOTO Step 4 otherwise GOTO Step 7
Step 7: Output P
Step 8: Stop
```

The output of this algorithm is

A. 5
B. 25
C. 125
D. 625

9. The rules of a programming language to write a program are referred as

A. syntax.
B. semantic.
C. debugging.
D. compilation.

10. The C compiler translates a

    A. machine code into object program.
    B. source program into object program.
    C. machine code into C language program.
    D. C language program into source program.

11. Which of the following statements is FALSE about assembly language?

    A. It consists of mnemonics.
    B. It is translated into machine language by using interpreter.
    C. It requires less execution time and less storage than high level language.
    D. It is a program that must be converted into machine language before execution.

12. In contrast to compiler, an interpreter

    A. requires more memory to operate.
    B. translates an entire program at a time.
    C. generates an intermediate object code.
    D. displays error in each line one by one.

13. The declaration of a variable consists of

    A. variable's value followed by variable's name.
    B. variable's data type followed by variable's name.
    C. variable's name followed by variable's data type.
    D. variable's value followed by variable's data type.

14. The memory space occupied by float data type is

    A. 1 byte.
    B. 2 bytes.
    C. 4 bytes.
    D. 8 bytes.

15. Consider the given C program.

```
#include <stdio.h>
int main()
{
   int a=10, b;
   float c=75.99;
   b=a+c;
   printf("Answer is: %d", b);
   return 0;
}
```

The output of this program is

A. 85
B. 85.99
C. 86
D. Error

16. In a C program, which of the following comes before the main() function?

A. Local variable
B. Global variable
C. scanf() function
D. printf() function

17. Consider the given arithmetic expression having variables A, B, C, D, E and F.

$ABC \div DEF$

How many types of arithmetic operators will be used if the given expression is converted into C statement?

A. One
B. Two
C. Five
D. Six

18. Consider the given C statement.

W=X%Y;

To store value 3 in variable W, the values of X and Y should be

A. X=3, Y=9
B. X=9, Y=3
C. X=18, Y=5
D. X=5, Y=18

19. Consider the given statement.

Z=X&&Y;

The statement Z=X&&Y; is replaced with Z=!(X||Y);

Now, to store value 1 in variable Z, the values stored in variable X and variable Y are

	Value Stored in Variable X	Value Stored in Variable Y
A	0	0
B	1	0
C	0	1
D	1	1

Use the given program to answer Q.20 and Q.21.

```
#include <stdio.h>
int main()
{
   int a=5, b=10, c=15;
   a=b*c;
   ++a;
   b=a;
   --b;
   c=b+c-5;
   printf("a=%d, b=%d, c=%d", a, b, c);
   return 0;
}
```

20. The number of binary operators used in this program is

A. two.
B. three.
C. five.
D. six.

21. The output of this program is

A. a=151, b=151, c=160
B. a=151, b=150, c=160
C. a=150, b=151, c=165
D. a=151, b=151, c=165

Use the given program to answer Q.22 and Q.23.

```
#include <stdio.h>
int main()
{
   int j=25, k=50, m;
   m=(j>k) ?j:k;
   printf("%d", m);
   return 0;
}
```

22. In this program, the statement m=(j>k) ?j:k; is similar to

    A. if-else statement.
    B. for loop statement.
    C. while loop statement.
    D. output function statement.

23. The output of this program is

    A. 0
    B. 25
    C. 50
    D. Error

24. Consider the given statement.

    int y=2+3*6/2;

    The value stored in the variable y is

    A. 8
    B. 10
    C. 11
    D. 15

25. Consider the given program.

```
#include <stdio.h>
int main()
{
    int c, a=5, b= -10, x=4, y=2;
    c=a++ - --b*y/x;
    printf("c=%d", c);
    return 0;
}
```

The output of this program is

A. 5
B. 6
C. 10
D. 15

26. Consider the following output.

Value of Y=25

Which of the following C codes will show this output?

int Y=25; puts("Value of Y=", "25")	int Y=25; puts("Value of Y=25", Y);
A	B
int Y=25; printf("Value of Y=%d", "Y");	int Y=25; printf("Value of Y=%d", Y);
C	D

27. Braces are required in if-else statement when

A. a single statement is executed.
B. a block of statement is executed.
C. there is a comment after the condition.
D. there is no statement after the execution.

28. In switch-case structure, the data type of expression should be

I. int
II. char
III. float

A. I only.
B. II only.
C. either I or II.
D. either II or III.

29. In C language, if the case against the evaluated result of switch statement is not present, then the statement executed will be

A. else statement.
B. else–if statement.
C. default statement.
D. otherwise statement.

30. Consider the given C statement.

if(((X%4==0)&&(X%100!=0))||(X%400==0))

This statement will be evaluated as TRUE when the value of X is

A. 1000
B. 1250
C. 1500
D. 2000

31. A for loop code is written to perform 4 repetitions.

Which of the following expressions of this for loop will increase the value of counter variable?

A. int j+=4;
B. j++;
C. j<=4;
D. j--;

Use the given program to answer Q.32 and Q.33.

```
#include <stdio.h>
int main()
{
   int x=15;
   do
   {
      printf("%d", x);
      x++;
   }
   while(x<=10);
   return 0;
}
```

32. The output of this program is

A. 0
B. 10
C. 15
D. 25

33. The program needs to print integer values from 1 to 10.

The option that shows the CORRECT replacement of programming statement to give this output is

	Original Statement	Replacement of Original Statement
A	x++;	x--;
B	while(x<=10);	while(x==10);
C	int x=15;	int x=1;
D	printf("%d ", x);	printf("%d ", x++);

34. The loop that is also known as counter loop is

A. for loop.
B. while loop.
C. do-while loop.
D. repeat-until loop.

35. Which of the following statements will skip the rest of the loop statement(s) and start the next iteration?

A. break
B. continue
C. switch
D. do-while

36. If the condition is FALSE at the first iteration in do-while loop structure, then it will

A. give logical error.
B. execute the statement once.
C. execute the statement twice.
D. fail to execute the statement.

37. Consider the following code.

```
#include <stdio.h>
int main()
{
   int i=1;
   while (i<=5)
   {
      printf("%d ", i*=4);
      i=i+2;
   }
   return 0;
}
```

The given code will display the output

A. 4
B. 1 4
C. 1 3 5
D. 4 12 20

Use the given program to answer Q.38, Q.39 and Q.40.

```
#include<stdio.h>
int main()
{
   int i=5, j=10;
   do
   {
      printf("Computer Science \n");}
   while (i++ < j--);
   return 0;
}
```

38. How many times the output Computer Science will be shown?

A. 2
B. 3
C. 4
D. 5

39. If printf("Computer Science \n"); is replaced by printf("%d \n",j); then the output will be

10 9 8 7	9 8 7 6
A	B
9 8 7	10 9 8
C	D

40. If we write the same code using while loop, then the difference in number of iterations will

A. not be significant.
B. be one less than do-while.
C. be two less than do-while.
D. be one more than do-while.

ALTERNATE TO PRACTICAL (ATP: Questions 41-50)

41. In C language, the purpose of scanf() function is to

A. take input from the user.
B. display output to the user.
C. scan each loop in a program.
D. scan each error in a program.

42. Consider the following mathematical formula.

$A = \pi r^2$

The C equivalent expression for this formula is

A. $A = \pi * r^2$
B. $A = \pi * r * r$
C. $A = 3.141 * r^2$
D. $A = 3.141 * r * r$

Use the given program to answer Q.43, Q.44 and Q.45.

```
#include <stdio.h>
int main()
{
   int a=9.3;
   float b=10.5;
   float c=a+b;
   printf("c=%.2f", c);
   return 0;
}
```

43. The number of format specifiers in this program is

A. one.
B. two.
C. three.
D. four.

44. The output of this program is

A. 19.00
B. 19.50
C. 19.80
D. 20.00

45. If the data type of variable c is changed into an integer, then the output of this program would be

A. 19
B. 19.5
C. 19.8
D. 20

46. Consider the given program.

```
#include <stdio.h>
int main()
{
   int J=10; J+=5;
   printf("%d",J);
   return 0;
}
```

The output of this program is

A. 0
B. 5
C. 10
D. 15

Use the given information to answer Q.47 and Q.48.

A program is written to display whether the triangle is equilateral, isosceles or scalene on the basis of the length of sides of a triangle given as input.

(**Note**: A triangle with unequal sides is called scalene triangle, a triangle with two equal sides is called isosceles triangle and a triangle with all equal sides is called equilateral triangle.)

47. The condition that will give an output as isosceles triangle is

A. if(side1=side2&&side1=side3&&side2=side3)
B. if(side1=side2||side1=side3||side2=side3)
C. if(side1==side2||side1==side3||side2==side3)
D. if(side1==side2&&side1==side3&&side2==side3)

48. The structure that will facilitate in getting the desired output is

A. if structure.
B. if-else structure.
C. if-else-if structure.
D. switch-case structure.

49. Consider the given program.

```
#include<stdio.h>
int main()
{
   int Z;
   printf("Enter a number: \t");
   scanf("%d", &Z);
   if (Z>10)
   printf("Hello World");
   return 0;
}
```

The input that will give Hello World as an output is

A. -12
B. -10
C. 10
D. 12

50. Consider the given program.

```
#include <stdio.h>
int main()
{
   int n=10, i;
   for (i=1; i<=n; ++i)
   {
      printf("Vision\n");
   }
   return 0;
}
```

The loop will repeat the code infinitely when the loop statement is

A. for(i=1; i>=n; --i)
B. for(i=0; i<=n; --i)
C. for(i=1; i>= n; ++i)
D. for(i=10; i<=n; ++i)

END OF PAPER

Please use this page for rough work

Please use this page for rough work

Please use this page for rough work

Please use this page for rough work