

COMPUTER STUDIES
Paper 1
(THEORY)
(Reading Time: 15 minutes)
(Writing Time: Three hours)
(Maximum Marks: 100)

**(Candidates are allowed additional 15 minutes for only reading the paper.
They must NOT start writing during this time)**

Answer **all** questions in Part I (compulsory) and 5 questions from Part II, choosing 3 questions from Section A and 2 questions from Section B.

All working, including rough work should be done on the same sheet as the rest of the answer.

The intended marks for questions or parts of questions are given in brackets [].

PART I

Answer **all** questions in this Part

While answering questions in this Part, indicate briefly your working and reasoning, wherever required.

Question 1

Directions: Each question in this section is followed by four possible choices of answers. Choose the correct answer and write it down in the answer booklet provided.

[10 x 1 = 10]

- a) A set of instructions written in a computer language is called
- A Algorithm
 - B Flow chart
 - C Program
 - D Pseudo code
- b) A large amount of similar data is stored in a single variable by using a(n)
- A Array
 - B Function
 - C Class
 - D Loop
- c) In C++, to display the output, we use the following object:
- A cin
 - B cout
 - C if
 - D while

d) The process of removing errors form a program is known as:

- A Testing
- B Verifying
- C Debugging
- D Executing

e) The code fragment in c++ will yield

```
int i = 7 ;  
int y= ++i ;
```

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

f) An HTML program consists of

- A HEAD and BODY
- B BODY and TAIL
- C HEAD and TAIL
- D HEAD and FOOT

g) In hyper text markup language we start the program with the tag

- A < HEAD>
- B < TITLE>
- C < BODY>
- D < HTML>

h) Which tag do we use before the text for each row in the table?

- A < TH>
- B < TR>
- C < TABLE>
- D < TD>

i) The HTML tag for line break is

- A <LB>
- B

- C <LR>
- D <BK>

j) To remove the cell padding for cells the HTML tag will be

- A CELLPADDING = 0
- B PADDING = 0
- C CELLPADDING = 1
- D PADDING = 1

Question 2

[10 x 1 =

Directions: Fill in the blanks with appropriate words or phrases.

- a) A step-by-step solution written in English to solve a problem is called -----.
- b) The Unary logical operator in C++ programming is denoted by -----.
- c) The accessibility modifiers of classes in C++ offer ----- levels.
- d) The ----- operator used for accessing a member of the class.
- e) The process of checking a program with different sets of sample data is known as -----.
- f) The -----in HTML is used to UNDER LINE the text.
- g) In HTML the tag <A> is used to ----- the text or image for hyperlinking.
- h) The tag <BODY BGCOLOR= "LIME" > will set the color of----- -- to lime.
- i) To create a frame with two rows of 40 pixels and 80 pixels the HTML tag will be -----.
- j) The country domain name .bt stands for -----.

Question 3

[15 x 2 = 30]

Directions: While answering the questions, indicate briefly your working and reasoning wherever required.

- a) Study the following algorithm carefully and give its output :
 Step 1: Start
 Step 2: Let count = 1
 Step 3: While count < 4
 Step 4: Output count
 Step 5: Count=count + 2
 Step 6: End while
 Step 7: Stop
- b) State clearly in one sentence the purpose of the algorithm given above.
- c) Study the following algorithm carefully and give its output :
 Step 1: Start
 Step 2: x= 5
 Step 3: y= 7
 Step 4: temp = x
 Step 5: x = y
 Step 6: y = temp

Step 7: Output “x = “, x
Step 8: Output “y= “, y
Step 9: Stop

- d) State clearly in one sentence the purpose of the algorithm given above.
- e) Detect errors if any in the following C++ code segment. Write clearly in words the specific errors.

```
class fun
{
    private :
        int a,b;

    public :
        fun();
}
fun fun() { a= 0 ; b =0}
```

- f) Write a program using for loop to print the word “BHSEC” five times on the screen.
- g) Write a declaration statement in C++ to store age of 1000 students.
- h) Detect the Syntax errors if any in the following segments of HTML codes

```
<HTML>
<HEAD>
<TITLE> ADDING IMAGE </TITLE>
< BODY >
H2 < FONT COLOR = “#0000FF”> MICKEY MOUSE <
/FONT> </H2>
</BODY>
</HTML>
```

- i) State function of the following tags in HTML.

- j) Write the HTML tags to insert preformatted text in a web page.
- k) Write the HTML expressions to insert the picture DISNEY.JPG in a web page and align it to the left.
- l) What will be the output of the following HTML expression in a web page?

```
<P> Enter Your Name: <INPUT TYPE = "text" NAME = "username"
SIZE ="30" MAXLENGTH="20"></P>
```

- m) Give the expression to create a grid of 1 row and 3 columns.
- n) Give the tags to mark the specified text bold and strike out simultaneously.
- o) Differentiate between a linear layout and a hierarchical layout of a web site.

PART II

Answer 5 questions in this Part,
choosing **any 3** questions from **Section A** and **any 2** from **Section B**.

SECTION A

Answer **any 3** questions from this Section.

The programs must be written in C++.

*Each program should be written in such a way that it clearly depicts the logic of the problem.
This can be achieved by using mnemonic names and comments in the program.*

Question 4

Write a class BCSE with three data members name, index number, marks in Dzongkha, Maths, Science and a member function to assign grades as per the given table.

Average marks	grades
90% and above	A
75 % - 89 %	B
60% - 74 %	C
35 % - 59 %	D
34 % and less	E

Write the main program to calculate the grade of Tshewang Rinzin , index number 9987 with marks 85 in Dzongkha, 94 in maths and science 95

[10]

Question 5

A number is said to be prime if it has exactly two divisors i.e. 1 and itself. For example the first few prime natural numbers are:

2,3,5,7,11,13,...

Fibonacci series is obtained by adding the two previous numbers. The first few numbers in the Fibonacci series are:

1,1,2,3,5,8,13,...

We wish to output all those numbers in the Fibonacci series that are prime and are less than 100, i.e.

2,3,5,13,.....<100

Design a function **int isprime (int n)** that determines returns 1 if **n** is prime and 0 if **n** is not prime. Now use this function to output all those numbers in the Fibonacci series that are prime and are less than 100.

まずは右まで。 [10]

Question 6.

Design a program to input marks of 10 students and store them in an array. Display the marks of all the 10 students.

Now input a mark and output a message “found!” if the mark is found in the array.

If the mark is not found in the array output the message “not found!”

[10]

Question 7

a) According to the declaration given below answer the following questions.

```
class typeA
{
private:
    int x ;
public :
    void typeA(int i);
    void showtypeA ();
};
class typeB : public typeA
{
private:
    float p,q;
public :
    void typeB (float a, float b);
    void showtypeB();
};
class typeC: public typeA,private typeB
{
private:
    int u,v;
public :
    typeC(int a , int b) ;
    void showtypeC();
};
```

i) List the data members inherited by class typeC

[2]

ii) Name the base class (es) of class typeB

[2]

iii) Name the class (es) that can access showtypeB () declared in type B.

[2]

b) Write a C++ program to get 50 integers and print the numbers that are multiples of 8.

SECTION B

Answer **any 2** questions from this Section.

The programs must be written in HTML.

Question 8

Write an HTML program to generate the following web page. [10]

MY FIRST WEB PAGE PROGRAM

DRUK UNIVERSITY

The following items are available in our press

1. History of Bhutan
2. Democracy in Bhutan
3. Environmental science

Question 9

Write an HTML program to generate the following table in a web page [10]

TASHI COMMERCIAL CORPORATION SALES RECEIPT				
PRODUCT CODE	PRODUCT NAME	PRICE PER UNIT	QUANTITY	TOTAL PRICE (Nu.)
P01	ATLAS	40	2	80

Question 10

Write an HTML program to generate the following form in a web page [10]

BIO - DATA FORM

NAME:

CLASS:

SCHOOL:

