

<b>Date of Examination</b>
<b>22-07-2022</b>



<b>No of Questions</b>	<b>04</b>
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**GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY**  
**BACHELOR OF SCIENCE HONORS IN ENGINEERING**

**INTAKE 39 – 1<sup>ST</sup> SEMESTER EXAMINATION – JULY/AUGUST 2022**

**BASIC COMPUTER PROGRAMMING AND NETWORKS**  
**(IT1012)**

**Instructions:**

**Duration: 02 Hours**

Answer all the questions.

Each Question carries 25 marks.

Calculators are Not Allowed.

**Question 01**

a) "Computer programming is the process of designing and building an executable computer program to perform a specific task."

- i. List down generations of the computer programming and briefly describe each stage.

[3 Marks]

- ii. Compare and contrast advantages of Machine level, Assembly level and High-level languages.

[3 Marks]

- iii. Compare and contrast language translator.

Compiler, Interpreter

[3 Marks]

- iv. Briefly describe the task of the computer programming.

[3 Marks]

b) Identify which of the following statement is/are true? If it is false, justify your answer.

- i. Second generation programming languages are specific to a particular processor family and environment.

[2 Marks]

- ii. Compiler begins processing the code before preprocessor adds or modifies the content of the source file the

[2 Marks]

- iii. Fifth generation programming languages are designed to reduce the programming effort that contains set of libraries and database management systems.

[2 Marks]

- c) Write a C + program which get the score value from the user. (it should be between 0 and 100). According to the mark value entered by the user, give the grade and the appropriate message to be displayed, according to the following table.

Score	Grade	Message to be displayed
100	A	Superb
>=90	A	Excellent
>=80	B	Very Good
>=70	C	Good
>=60	D	Average
<60	F	Weak

[7 Marks]

#### Question 02

- a) "C++ is a middle-level programming language developed by Bjarne Stroustrup in 1979 at Bell Labs."

- i. Compare and contrast Programming language and Natural language.

[3 Marks]

- ii. Using suitable example, explain what are local variables and global variables in C++.

[3 Marks]

- iii. Compare and contrast if and switch statements in C++.

[3 Marks]

- b) Identify which of the following statement is/are true? If it is false, justify your answer.

- i. C++ variable name can use only letters, digits and underscore and those are case sensitive.

[2 Marks]

- ii. X++ first increments the variable by 1 and then uses the value of the variable.

[2 Marks]

iii. Readability is a characteristic of a good computer program.

[2 Marks]

c) Write C++ program to the problems given below.

i. Convert a temperature given in Celsius into Fahrenheit using the below equation.

$$\text{Fahrenheit} = \frac{9}{5} \text{ Celsius} + 32$$

[5 Marks]

ii. Swap two numbers without using a third variable.

[5 Marks]

### Question 03

a) Answer the following questions.

i. Briefly explain common types of errors that can often occur in a program.

[3 Marks]

ii. Compare and contrast while and do-while loops in C++.

[3 Marks]

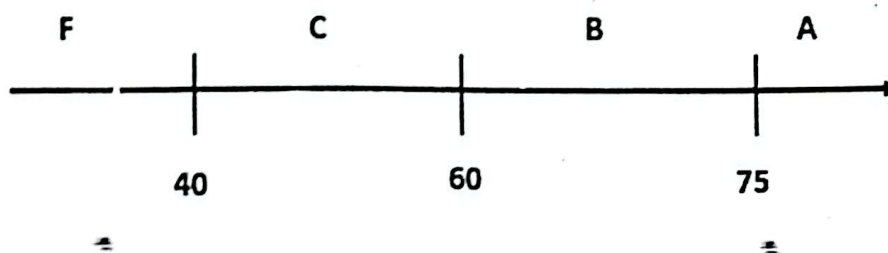
iii. Discuss what the function prototype and the function definition are using appropriate examples.

[3 Marks]

iv. Compare and contrast an array and variables in C++

[4 Marks]

b) Write a C++ code to print a grade for the given marks (range 0-100) with and without using nested loops. Use the following formula to calculate the grade.



[6 Marks]

- c) Write a C++ program with do-while loop that ask user to enter two numbers. The numbers should be added and the sum should be displayed. The loop should ask the user whether he or she wishes to perform the operation again. If so, the loop should repeat, otherwise it should terminate.

[6 Marks]

#### Question 04

- a) Computer network is two or more computers that are connected with one another for the purpose of communicating data electronically.

- i. Mention the fundamental network classification and briefly explain them.

[3 Marks]

- ii. Briefly explain physical and logical network topology with suitable examples.

[3 Marks]

- iii. Write three advantages and three disadvantages of peer-to-peer networking.

[3 Marks]

- b) Identify which of the following statement is/are true? In each case justify your answer.

- i. Hypertext Transfer Protocol (HTTP) is an example for a transport protocol.

[2 Marks]

- ii. Router is an internetworking device.

[2 Marks]

- c) Compare and contrast TCP/IP and OSI reference model.

Network Access, Internet, Transport, Application

[5 Marks]

- d) Briefly describe each layer of OSI reference model including functions of each layer.

Physical Data Link Network Transport Session Presentation Application

[7 Marks]

— END OF THE PAPER —