

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE AND ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE
BSc HONS DEGREE IN COMPUTER SCIENCE
CS112: OBJECT ORIENTED PROGRAMMING I
DURATION: 2 HOURS 30 MINUTES TOTAL MARKS: 100

INSTRUCTIONS TO CANDIDATES:

The paper consists of Section A (Theory) and Section B (Practical)

Answer ALL questions

 - JUN 2023

SECTION A (40 MARKS)

Question 1

- a. Define “*unStructured programming*” and outline any four of its limitations. [5]
- b. You are working for a vehicle parts manufacturer that needs to update its online inventory system. Your boss tells you to program two similar but separate forms for a website, one form that processes information about **cars** and one that does the same for **trucks**. For cars, we will need to record the following information: Color, Engine Size, Transmission Type, Number of doors. For trucks, the information will be similar, but slightly different. We need: Color, Engine Size, Transmission Type, Cab Size, and Towing Capacity. How do you add a bus form, that records the following information: Color, Engine Size, Transmission Type, Number of passengers using;
 - i. Procedural oriented programming. [5]
 - ii. Object Oriented Programming. [5]

Question 2

- a. Differentiate function overloading and function overriding. [6]
- b. Explain the two types of polymorphism. [6]
- c. What is a scope resolution operator. [5]
- d. Describe the characteristics of constructors. [8]

SECTION B (60 MARKS)

Question 3

Write a c++ program using class named **ITEMS** to process a shopping list for a departmental store. The list include details such as the code number and price for each item and allow the user to perform operations such as adding and deleting items on the list and print the total value of an order. [20]

Question 4

Write a c++ program to determine the maximum number out of any given two numbers using a friend function. In your solution one number must belong to its own class. [20]

Question 4

Write a c++ program to demonstrate how constructors are implemented and the order in which they are called when the classes are inherited. In your solution use three classes named grandfather, father and son such that grandfather and father are base classes and son is the derived class inheriting both grandfather and father. [20]

*****END OF PAPER*****