

**United International University (UIU)**  
Dept. of Computer Science & Engineering (CSE)

**CT-2**

**DS 1115: Object-Oriented Programming for Data Science**

Total Marks: 20

Duration: 40 Minutes

1. You are tasked with developing a Python program for an online shopping card system. The program will have a class **Item** containing attributes *name*, *price*, and *quantity*. There will be a class named **Cart** which will have a list named *item\_list*, and another variable named *balance* which will hold the current amount of money the user has. The **Cart** class will also have a method named *add\_to\_cart(item)* which takes an item object as a parameter and appends this item object to the list. Based on this scenario, do the following:

1. Create the classes mentioned above with the correct attributes and methods. [4]
2. In the *add\_to\_cart()* function, when a customer tries to purchase an item out of stock (quantity is 0), raise a custom exception named **OutOfStockException**. Create this exception class and raise it properly within the function. [6]
3. If the customer tries to buy anything more expensive than the amount of money that they currently have, raise a custom exception named **InsufficientFundsException**. Create this exception class and raise it properly within the function. [6]
4. All exceptions raised must be handled properly using try and except blocks. Within the except block, you can simply print the error message you want to show the customer. [4]