# University of Okara
# Department of Computer Science

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|---|---|---|---|---|---|
| Course Title: | Object Oriented Programming | | Course Code: | xxxx Credit Hours: | 4 |
| Course Instructor: | Sobia Yaqoob | | Program Name: | BS(Hons)CS | |
| Semester: | 2nd Sessio | 2019-2023 | Shift: | Morning | |
| Out Date & Time: | 23-08-2020 (10:00am) | | Deadline: | 24-08-2020 (03:00pm) | |
| Exam | Spring 2020 | | Marks: | 30+15 | |

**Instructions:**

- If a file is corrupted or problematic, it will be marked zero.
- Plagiarism/copy-paste will never be tolerated.
- Every individual will send exam data to his/her CR in following format:
- One zip folder named as "full-roll-no.-full-name". Zip folder must have two folders as follows:

1. **Mid exam (folder)**
   i. pdf file of midterm Problem # 1 → File Name → Mid-Roll No.-Full-Name.
   ii. Project's cpp file → File Name → ProjectName-Roll No.-Full-Name.
   **Note: File must contain roll nos. and names of all members of project using comments at top.**
   **iii.** Project report in MS Word → file name → ProjectName-Roll No.-Full-Name.
   **Note: Report must contain roll nos. and names of all members of the project.**
2. **Final exam (folder)**
   **i.** cpp file of Assignment → File Name → Assign-Roll No.-Full-Name.
   **ii.** cpp file of question # 1 → File Name → Q1-Roll No.-Full-Name.
   **iii.** cpp file of question # 2 → File Name → Q2-Roll No.-Full-Name.
   **iv.** cpp file of question # 3 → File Name → Q3-Roll No.-Full-Name.

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**Assignment:** Create a class called Invoice to represent an invoice for an item sold at the store. An Invoice should include four attributes—an item number, an item description, a quantity of the item and a price per item. Design a constructor, destructor, a set and a get function for each data member. In addition, provide a member function named getInvoice() that calculates the invoice amount (i.e., multiplies the quantity by the price per item), then returns the amount as an integer value. You are required to write code to test given class and apply file operations. (15 Marks).

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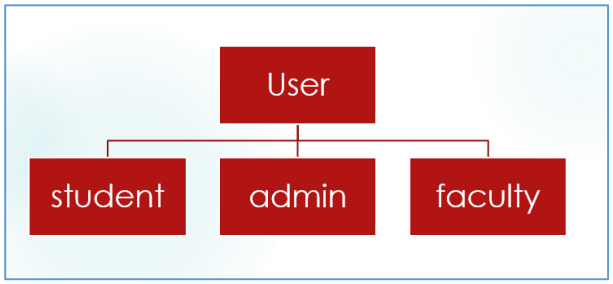
**Final Term: Attempt all questions Each question has 10 marks.**

**Q#1:** Write a program using class 'date1' that displays the current date of your system using "day/month/ year" format. The class should have the following member functions

- One-member function ‘set-date’ to set the date and assign value to individual data members ‘day’, ‘month’ and ‘year’.
- Second member function ‘print-date’ to print the current system date in standard format such as 10/10/2020.
- Third member function ‘next-date’ should display next coming date.

**Q#2:** Code following structure of an institution using the concepts of inheritance. Create at least one method for each class. Base class method must be called by the object created for derived classes.




**Q#3:** Write a class named as calculator containing four types of function add, subtract, multiply and divide. Calculator must perform arithmetic operations on two and three values with same function implementing polymorphism.