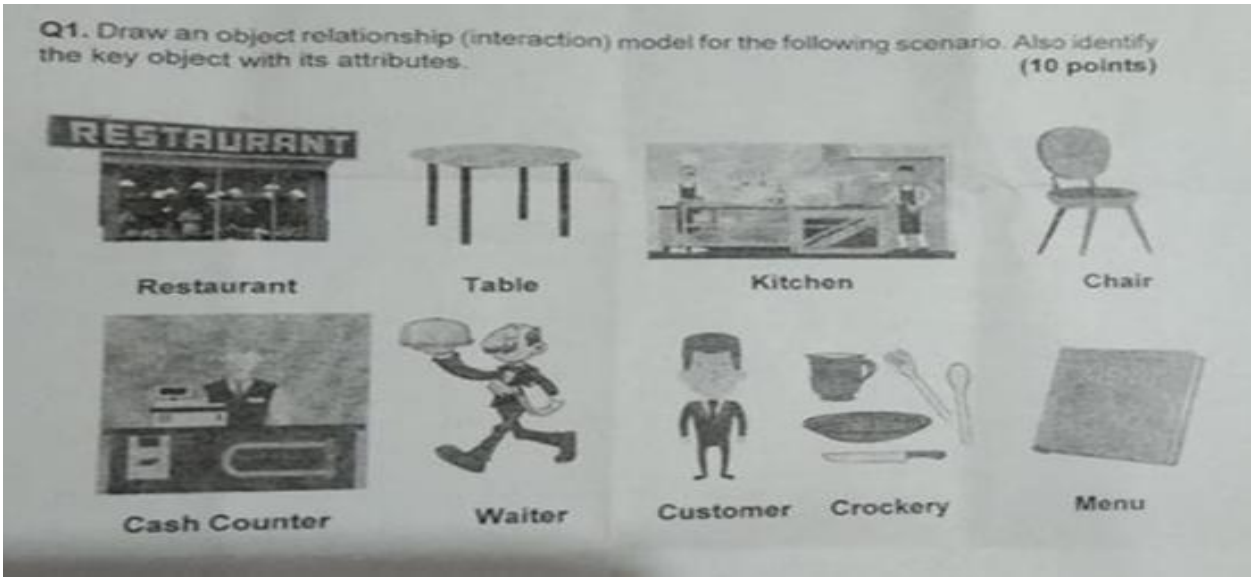
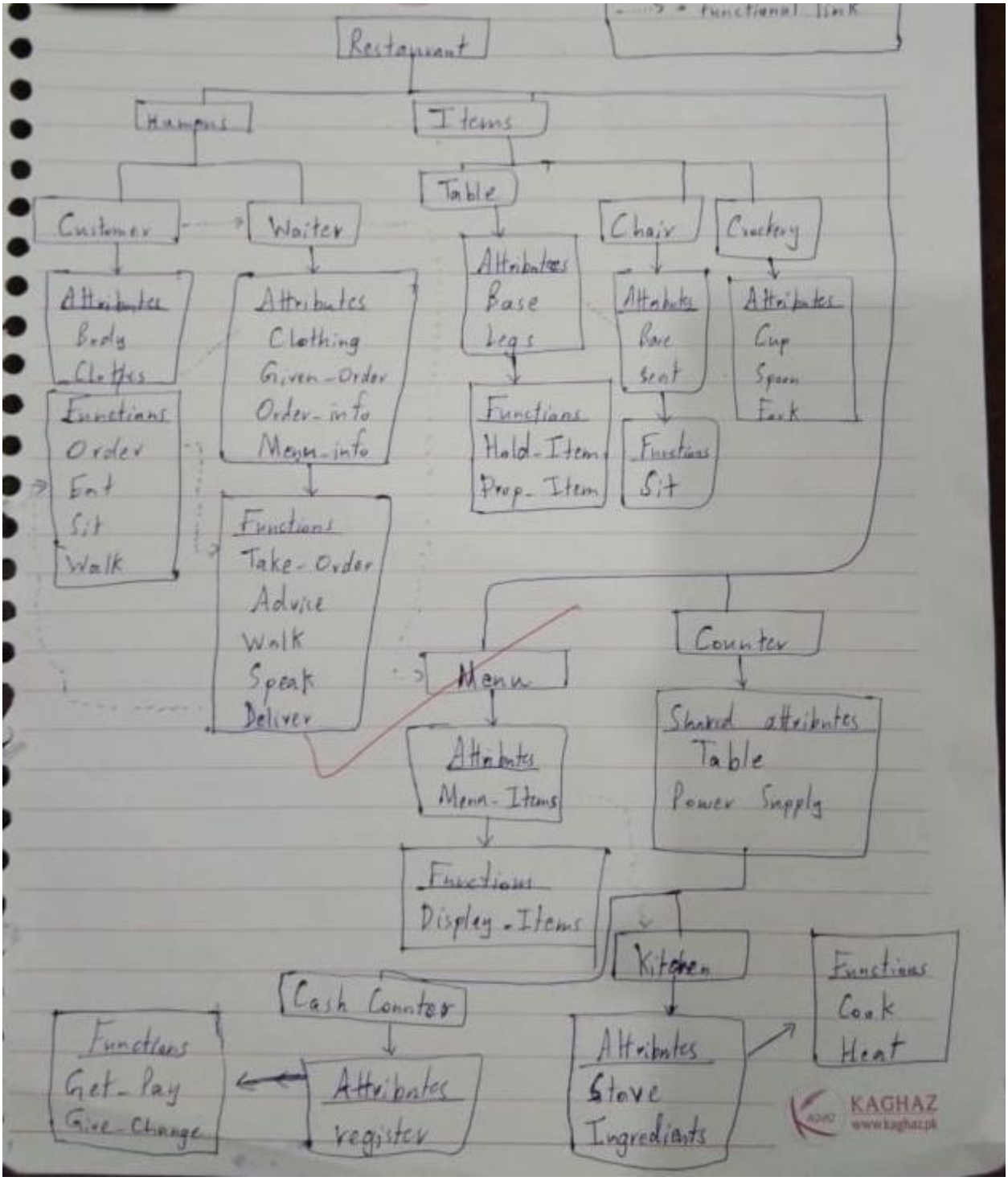
National University of Computer & Emerging Sciences, Karachi
Spring-2020 (CS-Department)

Object-oriented Programming (OOP)
Quiz # 1

Date: Tuesday, February 04, 2019





Q2. Consider the following class definition: (**10 points)**

public class date {

private:

```
    int day;          // range from 1 to 31
    int month;        // range from 1 to 12
    int year;         // ranging from 2000 onwards
    void advance();   // move to next day
};
```

a) Implement a constructor that initializes new objects to set *1st January 2000* as a default date.

```
date()

{

day = 1;

month = 1;

year = 2000;

}
```

b) Implement a setter function to adjust the date.

```
void setDay(int newDay)
{
        if(newDay>0 && newDay <32)
                {
                day = newDay;
                }
}

void setMonth(int newMonth)
{
if(newMonth>0 && newMonth <13)
        {
        month = newMonth;
        }
}

void setYear(int newYear)
{
if(newYear>1999)
        {
        year = newYear;
         }
}
```

c) Implement a private method **advance(),** which moves date to the next day, ensuring that all data members are updated appropriately.

```
void advance()
```

```
{
const int daysInMonth[12]={31,28,31,30,31,30,31,31,30, 31,30,31};
day++;
if(day>daysInMonth[month])
        {
        day = 1;
        month++;
        if(month>12)
        {
                month = 1;
                year++;
        }
        }
}
```

d) Call **advance()** from **main()** to update date.

```
void call()
        {
                advance();
        }
        int main()
        {
        date d1;
        d1.call();
        }
```

Q3. Short answer questions: *(one or two sentences)* **(5 points)**

a) Explain why it is sometimes useful to have accessors & mutators in a class?

To access, set and get the private data members of the class.

b) In the presence of a parameterized constructor, it is not necessary to have a setter function. Do you agree with this statement? Justify your answer.

No, Parameterized or any other constructor can only be called when the object is created. If we want to change/update the private data members after the object is created we necessarily need a setter function.