BITS, Pilani – KK Birla Goa Campus
Department of CS & IS
CS/IS F213 Object Oriented Programming
IS C313 Object Oriented Programming and Design

Max. Time: 60 min Test – I (Model Paper) Max. Marks: 45

Question-1

Read the following paragraph on P2P lending.

Kiva is the world's largest peer-to-peer lending platform, based in San Francisco, USA, that only a month or so ago announced its entry into the Indian market. Famous for the $25 loan (one can lend as little as $25 to a person of his or her choice anywhere in the world), Kiva has around 800,000 individual lenders, who have funded $340 million in loans for 840,000 borrowers in about 63 countries. In fact, Kiva is the inspiration behind all domestic P2P lending companies, such as Milaap, Rangde and MicroGram.

In a typical P2P model, a website publishes a list of loan seekers. A prospective lender chooses the borrower of his or her choice, makes payments through an online platform and gets monthly or quarterly payments on the loan, either with or without profit. The website facilitating this is run either on donations or fees charged to lenders and borrowers. Business models are varied.

Organisations like Kiva, for instance, do not give returns to investors, as they provide interest-free loans to their borrowers, while smaller domestic outfits do. Most of the international social investment websites cater to the underprivileged in Latin American and African countries.

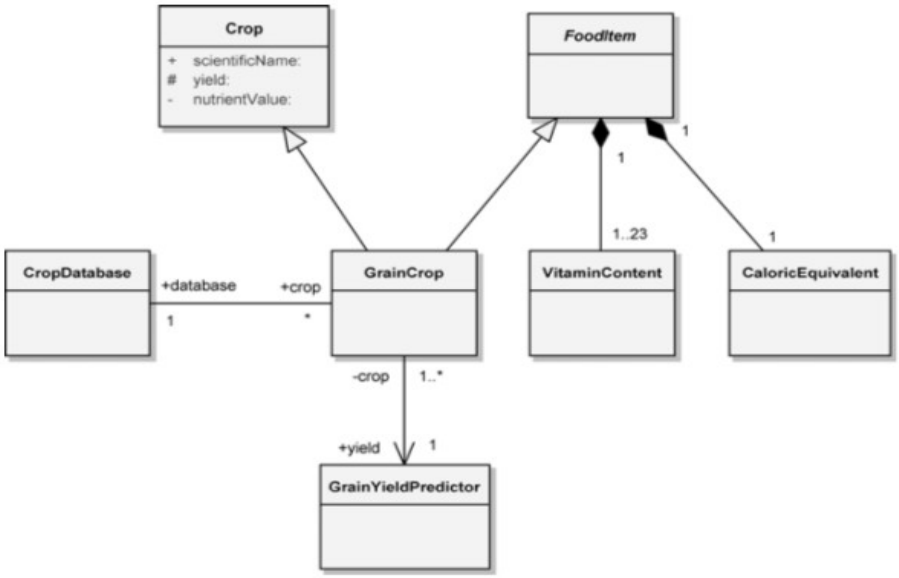
Domestic P2P players have diverse business models. For example, while **MicroGram** offers up to eight per cent return to lenders, **Milaap** offers no returns (it sends gift cards instead). Both organisations lend to microfinance institutions (MFIs) or non-governmental organisations (NGOs), which, in turn, lend to rural borrowers in a group-lending model. On the other end of the range are companies like **I-Lend**, a Hyderabad-based outfit which started operations three months ago. Borrowers of I-Lend can apply for loans anywhere between Rs 25,000 and Rs 3 lakh, while lenders can lend a minimum of Rs 5,000. I-Lend borrowers are mostly urban youth in need of personal or business loans, and the sole objective of lending in I-Lend is a high return.

(Ref: http://www.business-standard.com/article/finance/the-dawn-of-e-microfinance-112100300017_1.html)

A. Identify classes and objects based on,
   i) classical approaches
   ii) domain analysis
   iii) informal english description (10M)
B. Assuming that you identified microfinance institution (MFI) as a class, write a sample CRC card for the MFI class. (5M)
C. *Enrol as lender*, seems like a good candidate use case in the above scenario. Write a sample use case specification for *Enrol as lender*. (5M)

Question-2

Write skeleton Java code that would implement the given class diagram. (10M)



Question-3

Read the sample Java code given below.

```
1    package org.jnetpcap.examples;
2    import java.util.ArrayList;
     ...
3    public interface JCaptureHeader {
4        public abstract long timestampInNanos();
         ....
     }
5    public class PcapCapture implements Serializable, List<PcapPacket> {
       public static void main(String[] args) {
6            List<PcapIf> alldevs = new ArrayList<PcapIf>();
7            StringBuilder errbuf = new StringBuilder();
8            Object tempCache = new StringBuilder();
             int r = Pcap.findAllDevs(alldevs, errbuf);
9            if (r == Pcap.NOT_OK || alldevs.isEmpty()) {
10               System.err.printf("Can't read list of devices, error is %s", errbuf.toString());
                 return;
             }
             PcapIf device = alldevs.get(0);
             Pcap pcap = Pcap.openLive(device.getName(), 1024,...);
             ...
            pcap.loop(10, jpacketHandler, "jNetPcap rocks!");
            pcap.close();
       }
11     public long timestampInNanos() {
            ....
       }
       PcapCapture() {
            ....
       }
12     PcapCapture(alldevs) {
            ....
       }
     }
```

A. Identify the relevant elements of object model that have been implemented on numbered lines. (9M)

B. Draw a collaboration diagram for the code given. (6M)