SECTION A: STRUCTURAL QUESTIONS. 15marks

---

1. Define client, server, port, sockets, protocol.
2. Establish the difference between TCP/IP socket and UDP socket
3. Formulate an algorithm describing the basic steps involved in network communication using sockets;
4. Setting up a TCP server process in a client and server infrastructure requires five steps: Describe each of them including the corresponding java implentations
5. Setting up the corresponding client of the TCP server process of question 4 involves four steps:Describe each of them including the corresponding java implentations
6. Define RMI and state its purpose.
7. Describe using a diagram the principle of RMI techniques
8. State the four steps used in the implementation of an RMI client–server

Section B: Problem. 5marks

In this problem, the server will accept messages from the client and will keep count of those messages, echoing back each (numbered) message. The main protocol for this service is that client and server must alternate between sending and receiving (with the client initiating the process with its opening message, of course). The only details that remain to be determined are the means of indicating when the dialogue is to cease and what final data (if any) should be sent by the server. For this simple example, the string "***CLOSE***" will be sent by the client when it wishes to close down the connection. When the server receives this message, it will confirm the number of preceding messages received and then close its connection to this client. The client, of course, must wait for the final message from the server before closing the connection at its own end. Since an IOException may be generated by any of the socket operations, one or more try blocks must be used.

1) How many sockets need to be created to solve the above situation? Provide the function of each of them

2) based on section A deduce the java implentation of the server program related to the above problem