# Tema 1

1. Dare una definizione e spiegare l'utilizzo dei protocolli POP, IMAP e SMTP.

2. Descrivere l'utilizzo e i vantaggi nell'uso dei database relazionali.

Leggere e tradurre il seguente testo:

Wireless LANs are pervasive today. They initially gained popularity in homes, older office buildings, cafeterias, and other places where installing cables introduced too much cost. In these systems, every computer has a radio modem and an antenna that it uses to communicate with other computers. In most cases, each computer talks to a device called an AP (Access Point), wireless router, or base station.

# Tema 2

1. Esporre le caratteristiche principali e i vantaggi del cloud computing.

2. Definire il concetto di ereditarietà nella programmazione ad oggetti descrivendo un caso di utilizzo.

Leggere e tradurre il seguente testo:

Wired LANs use many different transmission technologies; common physical modes of transmission are copper, coaxial cable, and optical fiber. LANs have limited size, which means that the worst-case transmission time is bounded and known in advance. Knowing these bounds helps with the task of designing network protocols. Typically, wired LANs can run at speeds ranging from 100 Mbps to 40 Gbps.

# Tema 3

1. Dare una definizione di RAID di dischi, esplicitandone il meccanismo d'uso e le possibili configurazioni (RAID 0, 1...).

2. Dare una definizione generica di classe nella programmazione ad oggetti indicando le caratteristiche e i modi d'uso principali.

Leggere e tradurre il seguente testo:

Many wired LANs comprise point-to-point wired links. IEEE 802.3, popularly called Ethernet, is by far the most common type of wired LAN. Each computer speaks the Ethernet protocol and connects to a device called a switch with a point-to-point link. The job of the switch is to relay packets between computers that are attached to it, using the address in each packet to determine which computer to send it to.

# Tema 4

1. In caso di richiesta di intervento per un pc malfunzionante descrivere gli step di diagnosi per la risoluzione del guasto.

2. Descrivere il funzionamento e l'utilizzo di un DNS.

Leggere e tradurre il seguente testo:

A switch has multiple ports, each of which can connect to one other device, such as a computer or even another switch. To build larger LANs, switches can be plugged into each other using their ports. What happens if you plug them together in a loop? Will the network still work? Luckily, someone thought of this case, and now all switches in the world use her anti-looping algorithm.

# Tema 5

1. In caso di richiesta di intervento per un server non raggiungibile descrivere gli step di diagnosi per la risoluzione del guasto.

2. Dare una definizione di vettore (array) in programmazione descrivendo un caso di utilizzo.

Leggere e tradurre il seguente testo:

One prominent practice by many Web sites and application providers is the practice of profiling and tracking users by collecting data about their network behavior over time. One way that advertisers track users is by placing small files called cookies that Web browsers store on users' computers. Cookies allow advertisers and tracking companies to track users' browsing behavior and activities from one site to another.

# Tema 6

1. In caso di un blocco di stampa (stampante di rete) descrivere gli step di diagnosi per la risoluzione del guasto.

2. Dare una definizione di VLAN e descriverne le caratteristiche principali.

Leggere e tradurre il seguente testo:

There are other wired LAN topologies, too. In fact, switched Ethernet is a modern version of the original Ethernet design that broadcasts all packets over a single linear cable. At most one machine could successfully transmit at a time, and a distributed arbitration mechanism was used to resolve conflicts. It used a simple algorithm: computers could transmit whenever the cable was idle. If two or more packets collided, each computer just waited a random time and tried later.

# Tema 7

1. In caso di un blocco della navigazione di una pagina web descrivere gli step di diagnosi per la risoluzione del guasto.

2. Definire le differenze tra layer 2 e layer 3 nel modello ISO/OSI.

Leggere e tradurre il seguente testo:

Both wireless and wired broadcast LANs can allocate resources statically or dynamically. A typical static allocation would be to divide time into discrete intervals and use a round-robin algorithm, allowing each machine to broadcast only when its time slot comes up. Static allocation wastes channel capacity when a machine has nothing to transmit or receive during its allocated slot, so most systems attempt to allocate the channel dynamically (i.e., on demand).

# Tema 8

1. Illustrare le strategie di backup dei dati di una postazione pc.

2. Dare una definizione di router indicandone le caratteristiche e le differenze con lo switch.

A MAN (Metropolitan Area Network) covers a city. The best-known examples of MANs are the cable television networks. These systems grew from earlier community antenna systems used in areas with poor over-the-air television reception. In those early systems, a large antenna was placed on top of a nearby hill and a signal was then piped to the subscribers' houses.

# Tema 9

1. Illustrare le misure da adottare per la sicurezza dei dati in una postazione pc.

2. Descrivere le principali differenze tra la programmazione procedurale e quella ad oggetti evidenziandone vantaggi e svantaggi.

Leggere e tradurre il seguente testo:

Since the beginning of networking, a war has been going on between the people who support packet-switched networks (which are connectionless) and the people who support circuit-switched networks (which are connection-oriented). The main proponents of packet switching come from the Internet community. In a connectionless design, every packet is routed independently of every other packet.

# Tema 10

1. Indicare le differenze tra dominio e gruppo di lavoro in ambiente Windows e come configurarli.

2. Dare una definizione di CSS indicandone usi e vantaggi nell'utilizzo.

Leggere e tradurre il seguente testo:

Almost as soon as laptops appeared, many people dreamed of walking into an office and magically having their laptop computer be connected to the Internet. Various groups worked for years to accomplish this goal. The most practical approach is to equip both the office and the laptop computers with short-range radio transmitters and receivers to allow them to talk.

# Tema 11

1. Descrivere il meccanismo di load balancing in un server di macchine virtuali.

2. In caso di richiesta di intervento per un blocco di rete descrivere gli step di diagnosi per la risoluzione del guasto.

Network protocols often share a common set of design goals, which include reliability (the ability to recover from errors, faults, or failures); resource allocation (sharing access to a common, limited resource); evolvability (allowing for incremental deployment of protocol improvements over time); and security (defending the network against various types of attacks).

# Tema 12

1. Descrivere i possibili utilizzi di una unità storage.

2. Dare una definizione di HTTP e descriverne le caratteristiche principali.

Leggere e tradurre il seguente testo:

One mechanism for finding errors in received information uses codes for error detection. Information that is incorrectly received can then be retransmitted until it is received correctly. More powerful codes allow for error correction, where the correct message is recovered from the possibly incorrect bits that were originally received. Both of these mechanisms work by adding redundant information.

# Tema 13

1. Descrivere la gestione dei permessi in sistemi Unix.

2. Dare una definizione di FTP e descriverne le caratteristiche principali.

Leggere e tradurre il seguente testo:

A set of layers and protocols is called a network architecture. The specification of an architecture must contain enough information to allow an implementer to write the program or build the hardware for each layer so that it will correctly obey the appropriate protocol. However, neither the details of the implementation nor the specification of the interfaces is part of the architecture because these are hidden away inside the machines and not visible from the outside.

# Tema 14

1. Definire i vantaggi e gli svantaggi nell'uso di una macchina virtuale rispetto ad una reale.

2. Descrivere la differenza tra un codice compilato ed uno interpretato. Quali linguaggio usano il primo? Quali il secondo?

Leggere e tradurre il seguente testo:

Connection-oriented service is modeled after the telephone system. To talk to someone, you pick up the phone, key in the number, talk, and then hang up. Similarly, to use a connection-oriented network service, the service user first establishes a connection, uses the connection, and then releases the connection. The essential aspect of a connection is that it acts like a tube: the sender pushes objects (bits) in at one end, and the receiver takes them out at the other end.