

**IQRA NATIONAL UNIVERSITY**  
**Department of Computer Science**



**Professional Practice**

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Assignment: Final paper

**Question : 01**

**A) Explain the functional units of an organization in detail.**

**Ans) Functional units of an organization:**

Five groups of functions are there in every organization:

**Production:**

Activities that directly contribute to creating the products or services that the company sells.

**Quality management:**

Quality activities necessary to ensure that quality of the products and services produced is maintained at the agreed level.

**Sales and Marketing:**

Sales is concerned directly with selling the product, while marketing is concerned with establishing the environment in which the product is sold (e.g. through advertising) and with deciding how the range of products sold by the company should develop.

**4. Finance and Administration:**

To pay bills, to look after its funds, All central services.

**5. Research and development:**

How can the company do better the things that it already

**B) Explain that the following organizations (Microsoft, IBM, eBay, Amazon) are centralized or decentralized. Also justify your answer**

**Ans)**

- Microsoft is a clear example of a centralized company. A centralized company is a company which relies on one individual, central person to make all the decisions of the company and direct the company.
- IBM is also centralized because all of its decisions are relied on one individual.
- eBay is an example of an organization that has landed on the sweet spot. It has centralization: eBay requires people to log on, and buyers and sellers must identify themselves. It has decentralization: users can auction items to each other directly, buyers and sellers rate each other. This combination creates both trust and security.

In a centralized world, Amazon grows its current 9% e-commerce market share to a much larger percentage, taking advantage of its scale, efficiency, advanced technology, and the convenience of shopping in one place. So, Amazon is centralized.

**Question : 02**

**A) Explain limited and unlimited companies. Also list 3 limited and unlimited Companies in Pakistan.**

**Ans) Limited company:**

A limited company is a type of business structure where the company has a legal identity of its own, separate from its owners (shareholders) and its managers (directors). Even if a company has only one individual involved with it and that person is the only shareholder and the only director, the company is still a separate legal entity.

**Limited companies in Pakistan:**

- 1) Ittehad chemical LTD Lahore.
- 2) Linde Pakistan limited Karachi.

3) ICI Pakistan limited Multan.

### **Unlimited company:**

An unlimited company is very much like a regular private company limited by shares. It must be registered with Companies House and have a memorandum and articles of association.

There's a director that manages the day-to-day running of the company on behalf of the shareholders. Persons of significant control and an annual confirmation statement must still be submitted to Companies House.

### **Unlimited companies in Pakistan:**

- 1) Pakistan International Airlines Corporation
- 2) CyberNet
- 3) State Life Insurance Corporation of Pakistan

**B) While starting a new software company as fresh graduates, what are the two main sources of funds that can help you to start your company? Explain briefly.**

### **Ans) Grants:**

A grant is a sum of money given to the company; while the company is obliged to demonstrate that it has been used for the purposes for which it was intended, it is not intended that the grant should ever be paid back to the organization which gave it

The availability of grants and other help for new companies depends very much on where the company is located, how many people it expects to employ, and on government policy at the time.

### **Loans:**

A loan is a sum of money lent to the company; interest is payable on it, at a rate that may be fixed or variable, and the loan is usually for a fixed period

The company is liable to pay back the loan and, if the company goes into liquidation, the lender is entitled to recover the loan from the sale of the assets of the company.

In most cases, security is required for the loan

**Question : 03**

**A)What is intellectual property? Write and explain three ways that protect Intellectual property.**

**Ans) Intellectual property:**

(IP) is a category of property that includes intangible creations of the human intellect. There are many types of intellectual property, and some countries recognize more than others. The most well-known types are copyrights, patents, trademarks, and trade secrets

**Trademarks:**

Trademark registration is one of the most common, and straightforward, types of intellectual property protection. Trademarks are usually registered for logos and branding. You have the right to any mark you use to distinguish your company or product the minute you start using it to market, as long as no one else had already claimed that mark.

Registering a trademark with the USPTO makes it a lot easier to enforce your rights to that mark. If someone outside of your home state starts using your logo, for instance, it can be hard to enforce your IP rights without registering. When you start using any sort of unique logo, phrase, symbol, design, or packaging to market your product or service, be sure to register it.

**Copyrights:**

Copyrights are a little different from patents and trademarks. One of the biggest differences lies in that there is an office that deals solely with copyright registration. But beyond that, copyright law is meant to protect original, creative works -- stuff like music, drama, literature, and art. So if you come up with a jingle to use during commercials, you have a right to its use. You can even file to protect a logo, if it is seen as having enough artistic merit to warrant copyright protection. Any business built on creativity -- like a custom jewelry shop -- should register a copyright for any designs used.

Some businesses will also copyright their website's content. Like trademarks, the author or creator of any work does have copyright protection the minute the work is created. If you ever want to enforce a copyright, you need to register with the US Copyright Office first.

### **Patents:**

Patents are one of the most well known forms of intellectual property protection and are also notoriously hard to get. There are two main types of patents, utility patents and design patents. Utility patents are issued to protect novel, useful inventions, while design patents protect the unique appearance of a functional object -- like the design of a soda bottle. If your business is built on a patentable idea, I recommend you meet with a patent lawyer to make sure your application is filled

**B)What is the difference between European directive and U.S directive on data protection?**

**Ans) The Data protection laws of the EU:**

In the EU, two main legal instruments regulate the data protection in the information society. These legal instruments include the Data Protection Directive 1995/46/EC and the e-Privacy Directive 2002/58/EC.

**Data Protection in the US:**

Unlike the EU, the US does not have a single

overarching privacy law. On a federal level, the United States maintains a sectoral approach towards data protection legislation where certain industries are covered and others are not. At a state level, most states have enacted some form of privacy legislation. Below, we quickly discuss three important federal data protection laws, namely, the Health Insurance Portability and Accountability Act (HIPAA), the Fair and Accurate Credit Transaction Act (FACTA), and the Children's Online Privacy Protection Act (COPPA).

### **Result:**

Under EU law, personal data can be collected only under strict conditions and for a legitimate purpose. The main component of the EU data protection law is the Data Protection Directive 1995/46/EC. In the US, there is no all-encompassing law regulating the collection and processing of personal data. Instead, data protection is regulated by many state and federal laws.

The different approaches of the EU and US towards data protection probably stem from history. In Europe, where people have had dictatorships, data protection is declared as a human right and regulated by comprehensive data protection legislation. In this regard, it is worth mentioning that the STASI, the official state security service of the German Democratic Republic or GDR (informally known as East Germany), employed 500,000 secret informers. The task of 10,000 of these informers was to listen to and transcribe the phone calls of citizens. In contrast, in the US, the attitude towards data protection is governed mainly by market forces. It should also be noted that with the adoption of the US Patriot Act, which was adopted in response to the events on September 11, 2001, the US significantly reduced the restrictions in the collection of personal data by law enforcement agencies.

### **Question No: 04**

**a) What is contract? Explain the main purpose of contract?**

**Ans) Contract:**

A contract is a legal agreement between two or more parties.

- They set out the aims of the parties;
- Ways of terminating the contract and the consequences of termination.

Where there are gaps in the agreement because the parties have failed to complete a particular issue, it is a function of contract law to fill them,

for example contract law provides rules for the termination of the contract if performance becomes impossible.

It is important that:

- A contract is set in a clear and logical manner;
- A contract is complete and consistent;
- Insurance contracts;
- Contracts of employment;
- And the parties to the agreement should be left in no doubt as to their rights and duties. Software engineers are likely to come across many different types of contract like:
- Contracts with hardware suppliers and so on.

**B) What is pen-testing? Explain three methodologies of penetration testing used by ethical hackers.**

**Ans) Penetration testing:**

Penetration testing, also called pen testing or ethical hacking, is the practice of testing a computer system, network or web application to find security vulnerabilities that an attacker could exploit. Penetration testing can be automated with software applications or performed manually. Either way, the process involves gathering information about the target before the test, identifying possible entry points, attempting to break in -- either virtually or for real -- and reporting back the findings.

- Backdoors in the Operating System;
- Unintentional flaws in the design of the software code;
- Improper software configuration management implementation;



- Using the actual software application in a way it was not intended to be used

### **Methodologies of Penetration testing:**

- Black Box Testing;
- White Box Testing;
- Gray Box Testing.

### **Black Box Penetration Testing:**

Company staff does not know about the test. Tester is not given detail about the network so the burden is on the tester to find out the details. The test determines if the security personnel are able to detect an attack

### **White Box Penetration Testing:**

In this type of Pen test, also known as “Clear Box Testing,” the tester has full knowledge and access to both the source code and software architecture of the Web Application. Because of this, a White Box Test can be accomplished in a much quicker time frame when compared to a Black Box Test. .

### **Gray Box Penetration Testing:**

This mode of test is combination of both white and black box models. The company provides the tester with partial information about the network.

of test can take a very long time to complete, so very often, the tester will rely upon the use of automated processes to completely uncover the weaknesses and vulnerabilities. This type of test is also referred to as the “trial and error” approach.