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Question No: 01

a) Explain the functional units of an organization in detail?

Ans) **Functional Units of An Organization**

Five groups of functions exist in almost any organization:

1. Production: Activities that directly contribute to creating the products or services that the company sells.
2. Quality management: Quality activities necessary to ensure that quality of the products and services produced is maintained at the agreed level.
3. 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 Does and what other things might it profitably be doing?

b) Explain that the following organizations (Microsoft, IBM, Ebay, Amazon) are (08) centralized or decentralized. Also justify your answer?

Ans) Microsoft, IBM are centralized organization. The detailed operational decisions are taken at the center.

As many details as possible are settled at local level.

Question No: 02

a) Explain limited and unlimited companies. Also list 3 limited and unlimited (08) Companies in Pakistan

Ans)

Limited companies

Limited liability means that the liability of the owners or investors of a company is limited to the total amount of money which they have invested in the business. When the firm is registered as a limited liability firm, the owners of the company will be safe in the event the company goes bankrupt. To elaborate on this idea, 'limited liability' will imply that the owner's losses are only limited to the proportion of their specific share and he or she cannot be made responsible for the losses that are beyond the share of their contribution. We can say 'Corporation' is the most popular kind of limited liability company.

For example

- BAWANY AIR PRODUCTS LTD.
- LINDE PAKISTAN LIMITED.
- **ITTEHAD CHEMICALS LTD.**

Unlimited companies

We can say unlimited liability is just the opposite of limited liability. In this case, the liability that the owners and investors might have is not limited to the amount that they have contributed. This means that there is no limit to

the losses that the owners or investors have to bear.

Nevertheless, there are some strong benefits to investing in a company labelled as 'unlimited liability'. In financial management, there is a popular phrase which says, "higher the risk, higher the returns". This will hold good especially in case of unlimited liability companies. Since the risks in front of the investors is very high in case of the unlimited liability model, it is most likely that the investors will get a higher rate of return in the event the company performs well.

For example

PAKISTAN SPM COMPANY (PRIVATE) UNLIMITED

RAHIM JAN & COMPANY

PAK-ARAB FERTILIZERS LIMITED

c) 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 No: 03

a) What is intellectual property? Write and explain three ways that protect Intellectual property?

Ans) Intellectual property rights are often the most valuable assets owned, used and developed by a software house.

Intellectual property rights include:

- *Confidential information*
- *Patents*
- *Trade marks*
- *Designs*
- *Copyrights protecting computer programs*
- *They protect information stored by electronic means and all of the paperwork which accompanies a program, such as the user manual, plus any multimedia packages and most items on the Web.*
- *Great care should be taken to protect, exploit and enforce intellectual property*

Unauthorized use of intellectual property can be stopped by injunction and damages may be sought for infringement of these rights

The law is constantly changing with technological advance

General Agreement on Tariffs and Trade (GATT) concerned the protection of intellectual property rights in the face of widespread piracy of software products

Information will be protected only if it is confidential. Non-confidential information, unless protected, e.g. by copyright or a patent is deemed to be in the public domain and can be used by anyone.

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

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

2.1 The Data Protection Directive 1995/46/EC

The EU Data Protection Directive 1995/46/EC is applicable to the automated processing of personal data and other processing of personal data that form a part of a filing system. The Directive defines personal data as any information that relates to an “identified or identifiable natural person.” It should be noted that processing of personal data related to public security, defence, state security, and activities in areas of criminal law does not fall within the scope of the Directive. Below, the obligations of the person responsible for determining the purposes and means of the processing of personal data (“the data controller”) and the rights of the person whose data is processed (“the data subject”) are discussed.

The e-Privacy Directive 2002/58/EC

In addition to the EU Data Protection Directive 1995/46/EC, the EU adopted the e-Privacy Directive 2002/58/EC which was aimed at ensuring the protection of personal data in the field of telecommunications. The scope of the e-Privacy Directive includes publicly available electronic communications services in public telecommunications networks in the EU. In particular, the e-Privacy Directive 2002/58/EC regulates “traffic data” and “location data.” The term “traffic data” refers to data necessary for the provision of communications. The term “location data” refers to data giving the geographic position of the device. The e-Privacy Directive also regulates unsolicited communications (“spam”), cookies, and spyware.

Pursuant to the e-Privacy Directive, the providers of communications services falling under the scope of the Directive should notify breaches to the corresponding national authorities. They also have to notify subscribers or customers likely to be adversely affected by a breach, which can be an identity theft, reputation loss, etc. Together with the notification, the provider should also submit a list of the proposed measures that will be used to counter the breach.

With regards to cookies, the e-Privacy Directive states that they can be installed on devices of subscribers only after an explicit consent of the subscriber or the user is provided. It should be noted that such a consent can be obtained only after the subscriber have been provided with the information required by the e-Privacy Directive and after having been offered the right to refuse such access. Regarding

spam, the e-Privacy Directive states that remedies for infringements of the provisions on unsolicited communications can be obtained via legal proceedings.

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).

HIPPA

The aim of the HIPPA is to ensure protection for individually identifiable health data. In particular, HIPPA defines who can have access to health information. In most cases, such information can be used only by health care professionals who are using it for treatment and care coordination purposes. Information that is subject to protection includes medical providers' notes and records, health insurer's computer records, billing information, as well as conversations between medics concerning the patient's care and treatment.

FACTA

The aim of FACTA is to help protect consumers' credit information from the risks related to data theft. Pursuant to FACTA, credit card and debit card receipts, with the exception of handwritten receipts, should not list more than the last five digits of the card number. It should be also noted that, under FACTA, a person making a request for a credit report has the right to request that the first five digits of his Social Security number not be included on the file.

COPPA

The aim of COPPA is to protect the privacy of children under the age of 13. The scope of the Act encompasses websites that are directed at children or that have knowledge that children are visiting the website. COPPA imposes an obligation on the operators of these websites to publish privacy policies specifying whether or not personal information is being collected, how this information is being used, as well as the disclosure practices of the operators of the websites. In order to collect this information from children, the websites' operators must obtain verifiable parental

consent. Upon parental request, the provider should submit to the parent a description of the type of information being collected and stop collecting data from the particular child.

Question No: 04

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

Ans)

An **agreement** between two or more parties for the doing or not doing of something specified enforced by law

- Agreement = OFFER + ACCEPTANCE

Contracts serve the following purpose:

- Set out the agreement between the parties
- Set out the aims of the parties
- Provide for matter arising while the contract is running
- Ways of terminating the contract and the consequences

If the contracts are too harsh or unfair causing any issue between parties to be unresolved, it is the responsibility of contract laws to contemplate according to the rules

Contract should be clear, concise and consistent. There should be no ambiguity and the parties to the agreement should be left in no doubt as to their rights and duties. Ambiguity and doubts can lead to performance which is viewed as unsatisfactory. This can lead to disagreement and the expenditure of time, effort and therefore money, in resolving the matter.

There are almost never disputes over contracts which run perfectly. Example marriage.

Example of a ship carrying a cargo.

In order to avoid disputes and future difficulties it is better to draft a document which sets out:

- The terms on which both parties is to work
- Methods of payments

- Appropriate ways to terminate the contract-notice required

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

Ans) The process of attempting to gain or successfully gaining, unauthorized access to computer resources is called hacking.

OR

The process of modifying the features of a system, in order to accomplish a goal outside of the creator's original purpose.

pen test

A penetration test, also known as a pen test, is a simulated cyber attack against your computer system to check for exploitable vulnerabilities. In the context of web application security, penetration testing is commonly used to augment a web application firewall(WAF)

Pen testing can involve the attempted breaching of any number of application systems, (e.g., application protocol interfaces (APIs), frontend/backend servers) to uncover vulnerabilities, such as unsanitized inputs that are susceptible to code injection attacks.

Insights provided by the penetration test can be used to fine-tune your WAF security policies and patch detected vulnerabilities.

Penetration-Testing Methodologies

- **White box model**

Tester is told everything about the network topology and technology and is authorized to interview IT personnel as well. Makes the job easier for him

- **Black box model**

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.

- **Gray box model**

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