BCS-062

E-COMMERCE

June 2016

1.

(a) What is meant by Internet Commerce ? Explain the two main business models of various companies that do commerce over Internet. 10

Ans: Internet commerce is defined as the use of Internet for purchase and sale of goods, services, including service and support after sale. Internet commerce brings some new technology and new capabilities to business.

These are divided into two main categories :

* Transplanted Real-World Business Models

* Native Internet Business Models

Transplanted Real-World Business Models : Business activities which occur naturally in real-world and have been transplanted onto the Internet.

The following are some of the business models that fall into the above mentioned category:

- Mail-Order Model: A web site shop front is employed to sell physical goods which are then posted or delivered (Amazon.corn).
- Advertising Based Model: Where advertising revenues support the operation of a free service (Yahoo.com)
- Subscription Model: Users subscribe for access to a database of digital products; well suited for combination with digital delivery (informationweek.com)
- Free Trial Model: Software is available for free download or distributed on CD-ROM but will only work for a limited period or will not be fully, functional until a fee is paid.
- Direct Marketing Model: The use of e-mail based direct marketing (often ends up as spam).
- Real Estate Model: Sell web space, domain names and e-mail addresses.
- B2B: Businesses transact between corporate entities via the Internet, including financial, research, legal and employment services.
- Incentive Scheme Models: Opportunities to win prizes or to secure "free" or inexpensive goods or services are used to entice people to accept advertising or to provide personal information.

Native Internet Business Models: Business activities that have evolved in the Internet environment and are native to it.

The following are some of the business models that fall into above mentioned category:

- Library Model: The web site that offers free information.
- Freeware Model: It provides free software (basic versions may be free) or . open source software.
- Information Barter Model: Some sort of exchange of information over the Internet between individuals and organizations.
- Website Hosting and Other Internet Services: Hosting web servers, e-mail as well as URL and e-mail re-direction services.
- Digital Delivery Model: Takes place when digital products are purchased.
- Digital Products Model: Images, movies, animation, audio, text, certificates and software will be available as products.
- Access Provision Model: Provides access to Internet from enterprises called Internet Service Providers (ISPs).

(b) What is meant by Online Trading ? How is it performed ? Discuss the various payment modes for online trading. 10

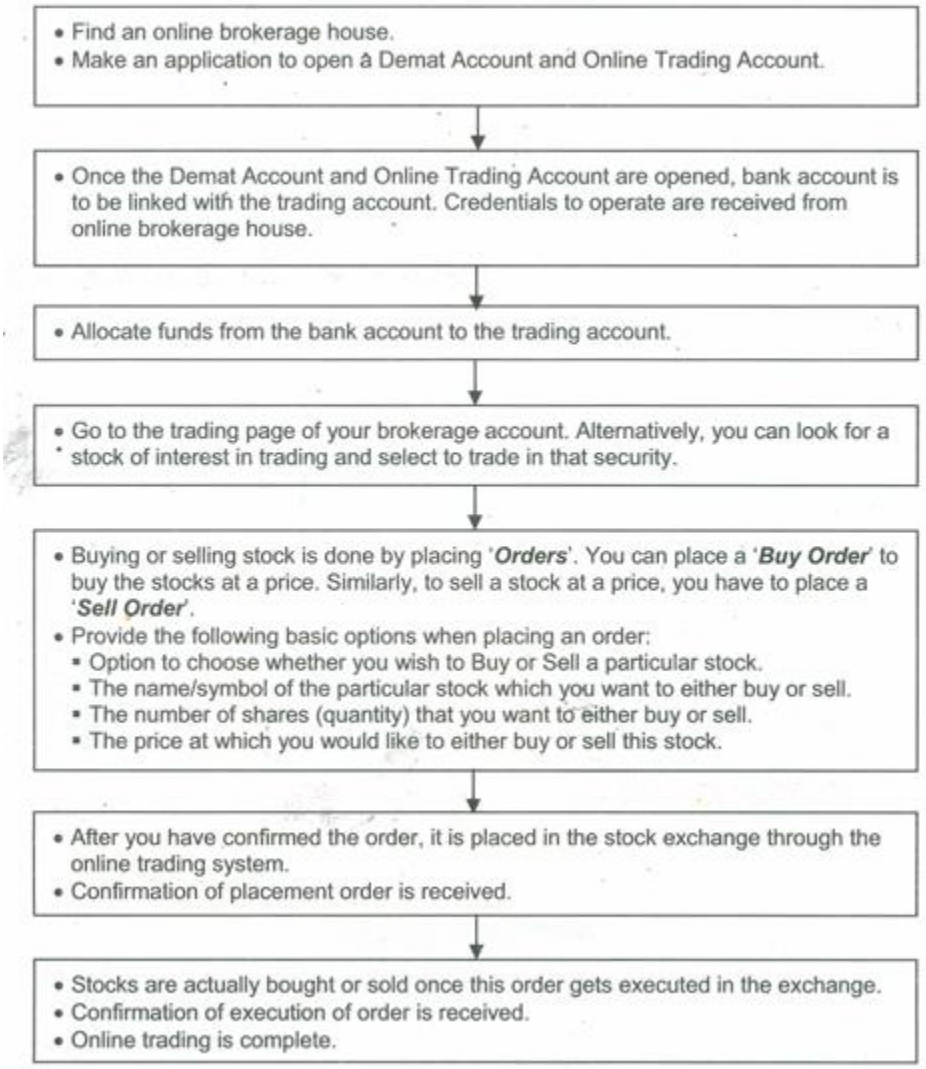
Ans: It is a platform that allows individuals and institutions to buy and sell financial securities, such as stocks, bonds, commodities and currencies, through the internet. The investor / trader gets updated information online. It leads to the decrease in the practice of an investor of looking at the share price in the morning newspaper. The transaction is dealt at a price at a moment checked in an online trading platform than issuing instructions for execution to brokers by phone or by person.

Advantages:

- It leads to paperless transactions. That is, shares are held in electronic form in the demat account.
- It helps in improving market transparency.
- Investors can trade from anywhere with an internet connection.
- Online trading system platforms are available 24/7, allowing traders to buy and sell securities at any time.
- Online trading system has lower commissions and fees compared to traditional brokerage services.

- It helps in smooth market operation while retaining the flexibility of conventional trading practices.
- Traders have access to real-time market data, enabling them to make quick decisions based on the latest information.
- There is free access to high quality research reports generated by financial players.
- All the records of transactions are available online.

Procedure of online trading system:



2.

(a) Explain any five security concerns in E-Commerce. 5

Ans: E-commerce can be secured if the entire commerce chain is secured. That is, the client computer, the messages travelling on the communication channel and associated servers.

Some of the major security concerns in E-commerce are :

- Active Content: Active content is a major area of concern in client security. Active content is the program embedded transparently in web pages which can cause actions to occur. For example, display moving graphics, download and play audio etc. It is used in e-commerce in the form of Java applets, ActiveX controls etc. It creates security risk because malicious programs hidden inside webpage can reveal and destroy the confidential and sensitive information in the form of cookies. These cookies remember user names, passwords, etc. on the client computers.
- Virus, Worms and Trojan Horses: Another security issue that arises to client and his computer are the viruses, worms and Trojan horses which can damage the systems. These viruses can delete stored data or manipulate actual data. Malicious software can damage the system and is a major threat.

Virus is a piece of software that is designed to replicate itself.by copying itself into other programs stored in a computer which can cause the program to operate incorrectly or corrupt the Computer's memory.

Worm is software that is capable of reproducing itself. It can also spread from one computer to the next over a network.

Trojan horse is a program that appears to have a useful function but contains a hidden function which is harmful.

- Masquerading : Another security concern of client is masquerading. Masquerading occurs when one person uses the identity of another to gain access to a computer. This may be done in person or remotely.
- Another major concern in any e-commerce application is the security of the communication channel. That is, the security of the message when it passes through the Internet. The data/message being transferred through the network must be secured from any unauthorized disclosure and alterations. Any theft of sensitive or personal information may become a significant danger. Replaying old messages, tapping of communications, unauthorized changes to messages, misuse of remote maintenance accesses are the dangers to the communication channel.
- Another major concern in any e-commerce application is the security of the web server, commerce server and databases. Database contains valuable and sensitive information. Any loss or manipulation of stored data can create irreparable

damages. The server is required to be protected from break-ins, site vandalism, and denial of service attacks. The more complex software becomes, the higher is the probability that errors exist in the codes.

(b) What is a digital signature ? How is it verified ? 5

Ans: As per Information Technology Act, 2000, Digital Signature may be defined as authentication of any electronic record by a subscriber by means of an electronic method or procedure in accordance with the provision of concerned sections of the Act.

Digital signature authenticates the identity of the sender of a message or signature holder of the document. It ensures that the contents of the message are intact. The sender cannot repudiate it later. Digital Signatures are easily transportable. They cannot be imitated. They can be automatically time stamped.

The following are various steps in the working of a digital signature:

(a) Sender creates the message (electronic record).

(b) Electronic record is converted into message digest by using a mathematical function known as hash function (which freezes the message).

(c) The message digest is encrypted with the sender's private key.

(d) Sender sends the message.

(e) Receiver receives the message.

(f) Receiver decrypts the message by the sender's public key.

(g) Receiver verifies the message.

Verification process: The recipient can verify the signature by decrypting the hash using the sender’s public key. They also generate their own hash from the received document. If the decrypted has matches the newly created hash, it confirms that the document has not been altered and that it was indeed signed by the holder of the private key.

3.

(a) Explain any five online payment systems and services. 5

Ans:

1. Credit cards: Due to its convenience, this is one of the most often utilized payment methods for online transactions. It is the most common method allowing

customers to pay directly from their card account. Its spending cap is determined by the user's credit history.

Advantage:

* Ease of use

* Secured than carrying cash

* Authentication is online. Thus, retailers are sure of payment.

Disadvantage:

* Internet frauds and phishing provide a serious security risk.

* Cost of credit card processing is more than cash payment in some cases.

2. Debit Cards : Debit cards and credit cards, which are given to consumers by banks, are similar. The major difference in debit card and credit card is that in case of debit card amount is immediately deducted from account as soon as transaction is done.

Advantage:

* Bankruptcy is less likely because the money is taken out of the associated account right away.

Disadvantages:

* Debit cards are pay now option i.e. no grace period of paying your amount,

* Debit card security is a big effort, and user pin theft is easier.

3. Smart Cards or Stored Value Cards: Smart cards resemble credit and debit cards as well, however they are made of plastic and have an extra microprocessor chip. This chip stores the customer details and digital cash value in it in encrypted form and can be accessed using customer PIN only. Smart cards are more secure and provide faster processing. Visa Cash card,Mondex cards are examples.

Advantage:

* Good for very small transactions

*It is currency neutral

Disadvantage:

* Due to lesser transaction limit, it is not suitable for B2B or B2C

* Due to high interface cost, it is not suitable for C2C

4. EFT: EFT is the computer based system that transfers the money electronically from one account to another. It is also known as e-cheque. Interbank transfers are examples of EFT.

Advantages:

* The manual cheque involves the cost of ordering cheques, stamps, envelopes, visit to bank, etc. But, EFT reduces all such administrative costs. It requires less labor and simplifies reconciliation of bills

* Money transfer is faster as transfer is normally done within 24 hours

* Process is secure when compared to cheques as no issue oflost or stolen cheques arises.

Disadvantages:

* It is limited to large companies.

* The transactions are irreversible.

5. PayPal: This is also electronic payment system in which money is transferred between the accounts. To use PayPal, you must open a PayPal account associated to your credit card or your bank account. However, a user can pay without giving, the credit card number during the transaction.

Advantages:

* Easy to use,

* PayPal allows for quick and easy online payments

Disadvantages:

* PayPal charges fees for receiving payments, which can be a percentage of the transaction plus a fixed fee.

* Because PayPal is frequently the target of phishing emails and scams, users must exercise caution when it comes to safeguarding their accounts.

(b) How does M-Commerce differ from E-Commerce? Explain the various technology components that help to, perform the commerce transactions using mobile.

Ans:

M-commerce	E-commerce
M-commerce stands for Mobile commerce.	E-commerce stands for electronic commerce.
M-commerce is a subset of e-commerce that refers specifically to transactions conducted using mobile devices, such as smartphones and tablets.	E-commerce refers to the buying and selling of goods and services online using the internet.
M-commerce includes not only online purchases made through mobile devices, but also mobile payments, mobile banking, and other transactions facilitated by mobile technology.	E-commerce includes not only buying and selling goods over Internet, but also various business' processes within individual organizations that support the goal.
Examples of M-commerce includes mobile banking like paytm, in-app purchasing Amazon mobile app.	Examples of E-commerce includes Amazon, Flipkart, Quikr, Olx websites.
M-commerce is conducted using mobile devices such as smartphones and tablets.	E-commerce is conducted using desktop or laptop computers.
M-commerce offers a wider range of payment options, including mobile wallets and contactless payments.	Several methods have evolved to pay your dealers such as Credit Cards, Debit Cards, PayPal account, Direct Online Money Transfer etc.
Its reachability is more than that of e-commerce only due to the use of mobile devices.	Its reachability is comparatively low than the m-commerce as it is not so good in portability.
M-commerce devices are easy to carry and portability point of view it is good.	E-commerce devices are not easy to carry and portability point of view it is not so good.

The following are the main technology components which help perform the commerce transactions using mobile devices:

* GPRS (General Packet Radio Service) is a mobile data standard that offers band width between 9.6 kbps and 115 kbps via GSM (Global System for Mobile Communications) network and enables simultaneous receiving and transmission. It is essentially a packet switching wireless protocol which enables continuous connectivity for mobile devices. It provides packet-switched data transmission services to 2G and 3G cellular networks. GPRS is a "best-effort" service, meaning that the throughput and latency can vary depending on network conditions and the number of users sharing the service.

* WAP (Wireless Application Protocol) is a protocol that involves Wireless Markup Language (WML). Like HTML, it provides support for text and image presentation, etc. for mobile devices. It is a technical standard that enables access to internet services on

wireless devices like mobile phones. It provides a framework for how these devices can communicate with web servers and access data services. WAP was created to function with various wireless network technologies in order to provide mobile devices with access to enhanced services and internet content.

* W-CDMA (Wideband Code Division Multiple Access) Wideband Code Division Multiple Access (WCDMA) is a 3G mobile technology that uses CDMA principles and a broader radio band to increase data transfer rates in GSM systems. It offers 2 Mbps bandwidth approximately. When compared to previous 2G technologies, it provides faster data rates and better call quality.

* UMTS (Universal Mobile Telecommunications System) also known as 3G network which offers 2 Mbps approximately for both up-linking and down-linking.

* Satellite based communication provides wide coverage over various geo locations. Satellite-based communication utilizes satellites orbiting the Earth as relay stations to transmit and receive radio frequency (RF) signals, enabling communication between distant locations. The satellite and its control systems make up the space section of these systems, while the ground stations and terminals make up the ground segment. Signals are transmitted from ground stations to the satellite (uplink), amplified and retransmitted back to Earth (downlink), and then received by another ground station or user terminal.

4.

(a) Explain any five functionalities of an Online Shopping Portal. 5

Ans: Some of the main functionalities of an online shopping portal are given below:

* User Experience : The ease and intuitiveness with which a client may navigate is referred to as the user experience. This includes responsive design, quick loading times and easy checkout processes. The e-commerce application should be visually appealing, responsive and interactive. The web application should contain consistent hierarchy and layout structure. The web application should provide consistent branding and immersive visual elements. For example, using large, clear images and straight forward menus improves the user experience.

* Search Feature: Ans: Users can locate products easily using a powerful search function. The application should allow the user to search for the product by its attributes such as name, and brand. Features like sorting and filtering options help narrow down choices, making the shopping experience more efficient. The search should be filtered based on price, brand, and product features.

* Personalization : Personalization refers to tailoring the shopping experience to individual users. This can include showing recommendations based on past purchases or browsing history. The application should provide personalized recommendations based on recent purchase history and user profile attributes for registered users.

* Security : Ensuring the protection of user data is very important. Application should support authentication and authorization. The application should include implementing secure payment gateways, SSL certificates and privacy policies.

* Social Media: E-Commerce application should support social features to promote and advertise the product(s). It allows users to share their purchases and experiences, enhancing engagement and driving traffic. For example, enabling users to share their shopping experiences or products reviews on social media like Facebook or Instagram can promote products to a wider audience.

(b) Define the term 'EDI'. Explain its architecture with the help of a diagram. 5

Ans:

EDI stands for Electronic Data Interchange (EDI). EDI is a structured, machine-readable document used in business exchanges. Using EDIs in corporate operations would automate the process and cut down on transaction time overall. Some of the examples of EDI include purchase orders, sales orders, invoices, bills etc. EDIs are pre-dominantly used in B2B scenario.

The main characteristics of EDI include the following:

- offers a defined and organized style for commercial transactions, including bills, sales orders, and purchase orders.
- allows for automatic electronic data interchange,
- Most business transactions are automated
- Significantly lowering manual errors in business processes and transactions

The four main layers of EDI architecture are:

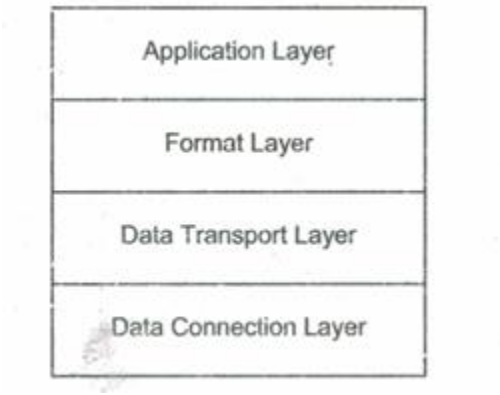
- Application Layer
- Format Layer
- Data Transport Layer
- Data Connection Layer

Application layer: This layer consists of business applications which use the EDI. The business logic is implemented in this layer. The applications can be internal enterprise systems and other B2B systems. These applications primary duty is to convert the company's electronic internal documents into the standard format that the EDI system supports. So, these applications act as converters in application Layer.

Format Layer: This layer processes the documents in EDI formats. Two popular industry wide EDI standard formats are ANSI X12 and EDIFACT (Electronics Data Interchange for Administration, Commerce and Transport).

Data Transport Layer: This layer is responsible for automatically transferring the EDI. Even though, email is a widely used method of exchanging data. Other modes of transportation include FTP, HTTP, and HTTPS Dad X.435.

Data Connection Layer: This layer consists of enterprise network infrastructure which is used to transport data. This includes dial-up/modem based connections, Internet, point-to-point communication etc. Other popular format for network infrastructure includes employing of a Value Added Network (VAN) which provides an EDI account and store-and-forward mailbox for subscribers.



EDI layered architecture

5.

(a) How can e-commerce portals make shopping secure ? 5

Ans: By using a multi-layered strategy that incorporates safe payment gateways, robust authentication techniques, frequent software upgrades, and strong encryption, e-commerce platforms can improve security. The security in e-commerce is becoming more topical part in the ongoing success and growth.

The following are some of the security features that can be implemented for success of e-commerce:

- Identification or Authentication The persons/entities with whom we are communicating are really whosoever they are.
- Confidentiality: The content of the message or transaction is kept confidential. It should only be read and understood by the intended sender and receiver.
- Integrity: The content of the message or transaction is not tampered accidentally or deliberately.
- Non-Repudiation: The sender and receiver cannot deny sending and receiving of the message or transaction respectively.
- Access Control: Access to the protected information is only realized by the intended person or entity.

There are two levels for securing information over the Internet :

* The first level is issue of a Digital certificate. Digital certificates provide a means of proving your identity in electronic transactions; much like a driving license or a passport. With a Digital certificate, you can assure friends, business associates, and online services that the electronic information they receive from you is authentic.

* The second level is SSL (Secure Sockets Layer). SSL is a standard security technology that helps in establishing an encrypted link between the server and the client- typically a web server (e-commerce website) and a browser (consumer side). SSL allows client/server applications to exchange sensitive information such as credit card numbers and login credentials securely preventing others from eavesdropping, tampering or forging the information.

(b) Explain the two categories into which Search Engines are classified. 5

Ans: Search engines are classified into two categories.

- Crawler based search engine: hese are the most common type of crawler based search engine. These search engines called robot or bat, generally index sites based on the content and links to your website. Google and Alta vista are examples. The exact method of ranking the website by crawler based search engine is kept confidential as rules keep on changing with time .
- Human powered directories: These are compiled by human reviewers who examine and evaluate description of website and then they rate the contents using their own criteria. Normally, this type of combination is done for listing by paid search engines. Offer more curated and relevant results, but have a smaller scope compared to crawler-based engines.