BCS-062

E-COMMERCE

December 2018

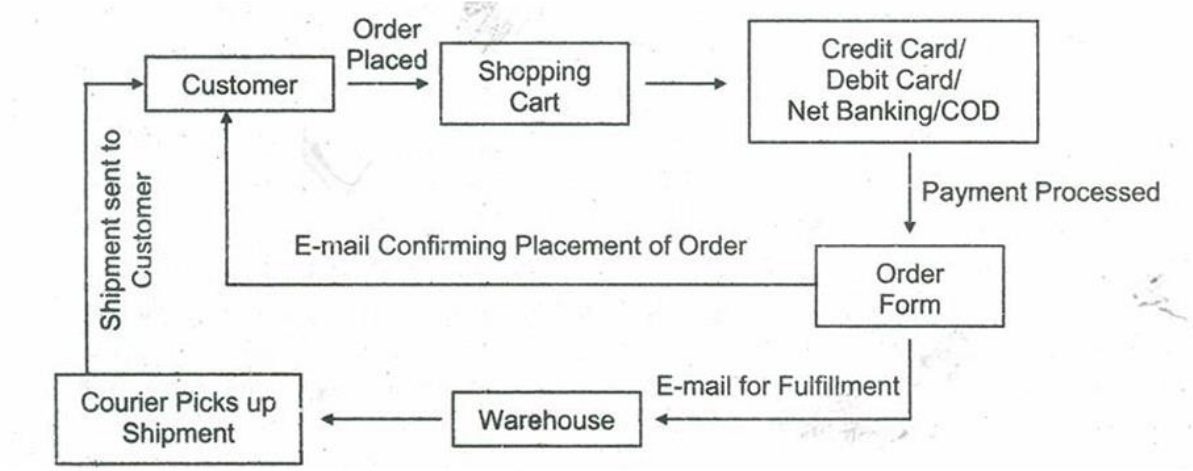
1.

(a) Define the term e-commerce. Explain its work flow.

Ans: E-commerce stands for electronic commerce. E-commerce refers to the buying and selling of goods and services online using the internet. E-commerce includes not only buying and selling goods over Internet, but also various business' processes within individual organizations that support the goal. E-commerce is conducted using desktop or laptop computers. Its reachability is comparatively low than the m-commerce as it is not so good in portability. Several methods have evolved to pay your dealers such as Credit Cards, Debit Cards, PayPal account, Direct Online Money Transfer etc. Examples of E-commerce includes Amazon, Flipkart, Quikr, Olx websites.

E-commerce work flow:

The customer searches the online store for a product and compare a few different models with prices. The bonus is that the customer can also go to other online product review sites, and discussion forums. Once the customer likes a product after all research, s/he can order for it online. The customer selects items and adds them to their virtual shopping cart. E-commerce has also made it easy to pay. Several methods have evolved to pay your dealers such as Credit Cards, Debit Cards, PayPal account, Direct Online Money Transfer etc. Once the payment is processed and order form is created and an email confirming placement of order is sent to the customer. The warehouse is sent an email the package for shipping. An email is sent to the warehouse to fulfill the order of customer. The shipping company is notified, and a shipping label is generated. The courier company picks up the shipment from the warehouse. The package is shipped to the customer via the chosen shipping method. The package is shipped to the customer via the chosen shipping method which reaches the doorstep of the customers within few days.



E-commerce work-flow

(b) What is an e-paper ? List the advantages and disadvantages of e-papers.

Ans: Electronic newspaper is normally called e-paper. Online newspapers are becoming more and more popular to news readers who are Internet savvy. Electronic newspaper is the newspaper which exists on the Internet either separately or as online version of a printed periodical. Examples of popular e-papers are: http://www.timesofindia.com and http://www.thehindu.com.

Features of e-newspaper are:

Search: Readers can easily search for specific news or articles. This makes it convenient to find relevant news.

Interactive content : Most online newspapers include videos, podcasts,hyperlinks and interactive infographics that enhance the reading experience.

Customize: Users can customize their news feed based on interests, helping them to focus on topics they are interested in.

Archives are easily available. The Hindu e-paper offers access to archived editions, enabling users to easily find and revisit past articles.

Sharing articles: The e-paper enables easy sharing of articles with others through social media or email.

Advantages:

• It is accessible 24* 7. The e-paper can be easily accessed on smartphones, tablets, or laptops, allowing for convenient reading while commuting or traveling.

• It can be read anywhere, anytime.

• The reader can select the news of interest and avoid the rest.

• It is environmentally friendly than getting a printed newspaper.

• It is a reliable source of news as it is updated at regular intervals.

• E-newspapers do not require physical storage and can avoid cluttering in the home.

Disadvantages:

• Prolonged screen time can lead to eye strain and digital distractions, potentially detracting from the immersive reading experience.

• Not everyone has access to the internet which can limit readership.

• Misinformation: The online sphere can be less regulated, potentially leading to the spread of misinformation, which readers need to be aware of and filter out.

• A newspaper company should be prepared for reduced revenues if it provides e paper free of cost.

2.

a) What is a Digital Signature ? How does it work ?

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.

(b) How does m-commerce differ from e-commerce ? Explain the various technology components that help to perform commerce transactions using mobile devices.

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.

3.

(a) What is meant by Inter-organisational e-commerce ? How does it differ from Intra-organisational e-commerce ?

Ans: When e-commerce transaction involves multiple organizations, then it is termed as Inter- organizational e-commerce. It refers to the online transactions and interactions that occur between different organizations. Inter-organizational e-commerce involves transactions between different companies, suppliers, partners, and customers. It focuses on the exchange of goods, services and information across organizational boundaries.

B2B is the most common form where businesses sell products or services to other businesses.

Inter-organizational e-commerce vs intra organizational e-commerce:

Inter-organizational e-commerce	intra organizational e-commerce
When e-commerce transaction involves multiple organizations, then it is termed as Inter- organizational e-commerce.	When e-commerce transaction does not involve multiple organizations, then it is termed as intra-organizational e-commerce.
Inter-organizational e-commerce is about "business to business" or "business to consumer" interactions.	Intra-organizational e-commerce is about "business to employee" interactions or internal business process automation.
Inter-organizational e-commerce spans multiple organizations.	intra-organizational e-commerce is limited to a single organization.
Inter-organizational e-commerce involves businesses selling to other businesses or collaborating on supply chains.	intra-organizational e-commerce involves internal processes and transactions within a company.
Inter-organizational e-commerce may utilize technologies like EDI, B2B marketplaces, and collaborative platforms.	intra-organizational e-commerce often relies on ERP systems, intranets, and internal management tools
Inter-organizational e-commerce aims to improve efficiency and collaboration across organizations.	intra-organizational e-commerce focuses on streamlining internal operations, improving communication, and enhancing employee experience
For example, A manufacturer using an online portal to order raw materials from its suppliers, or a retailer using a B2B marketplace to source products from various vendors.	An employee using an internal portal to submit expense reports, a company offering an online platform for employees to access benefits information, or an internal system for managing employee performance reviews.

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

Ans: Five functionalities of an Online Shopping Portal are:

1. User experiences: 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.
2. Search Feature : 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.
3. 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.
4. 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.
5. 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.

4.

(a) How can e-commerce portals make shopping secure ? 6

Ans: By using a multi-layered strategy that incorporates safe payment gateways, robust authentication techniques, frequent software upgrades, and strong encryption, ecommerce 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 ecommerce:

• 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.

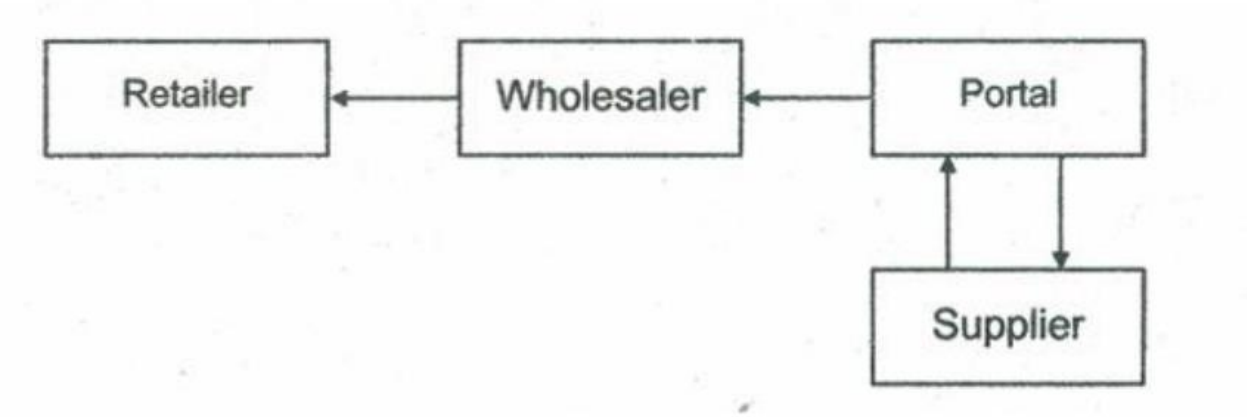
There are two levels for securing information over the Internet :

* 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.

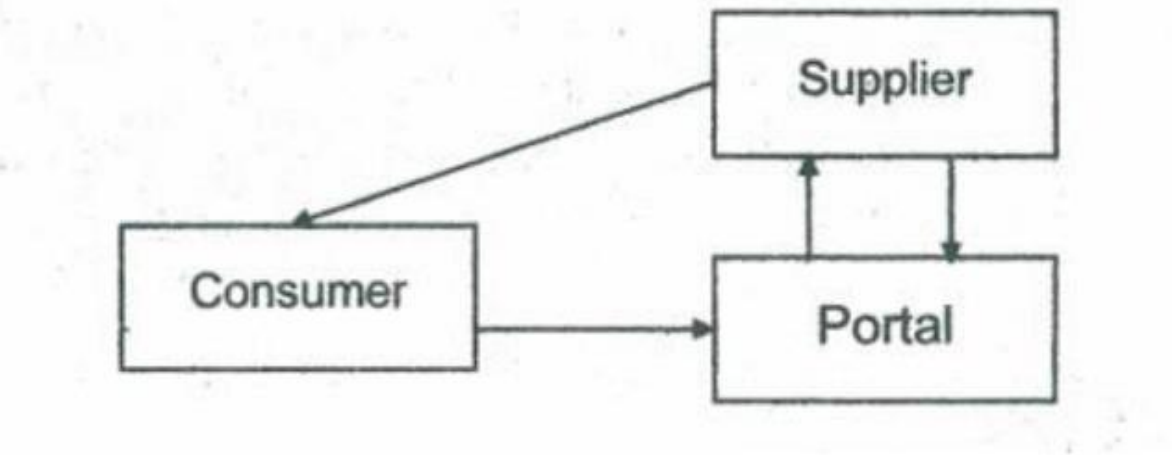
* The second level is SSL (Secure Sockets Layer). SSL is a standard security technology that helps in establishing an encrypted link between the server and the client- typically a web server (e-commerce website) and a browser (consumer side). SSL allows client/server applications to exchange sensitive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

(b) Describe the characteristics of B2B, B2C, C2B and C2C models of e-commerce. 4

Ans: B2B: B2B refers to Business to Business. In B2B e-commerce model, the transactions are between businesses. Here the companies are doing business with each other. The final costumer is not involved. An example of such transaction is between wholesaler and retailer. Examples of B2B portals include http://www.infobanc.com, http://www.ask4plastic.coin, http://www .matexnet.com, http://www.pcbindia.com.



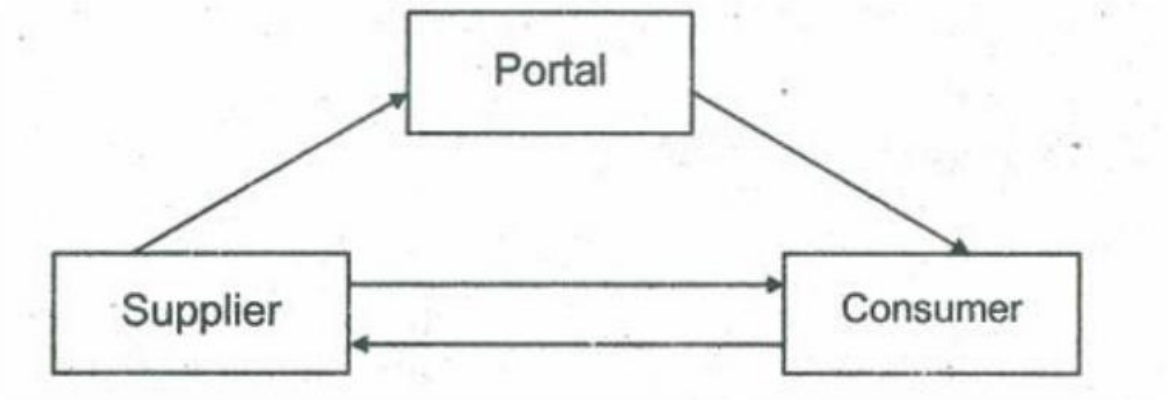
B2C: It refers to Business to consumers. In B2C e-commerce model , the transactions are between businesses and consumers. The company will sell their goods and/or services directly to the consumer. An example of such transaction is between Indian Railways and Passenger. Examples of B2C portals include http://www.irctc.co.in, http://www.amazon.com,and http://www.tatasky.com.



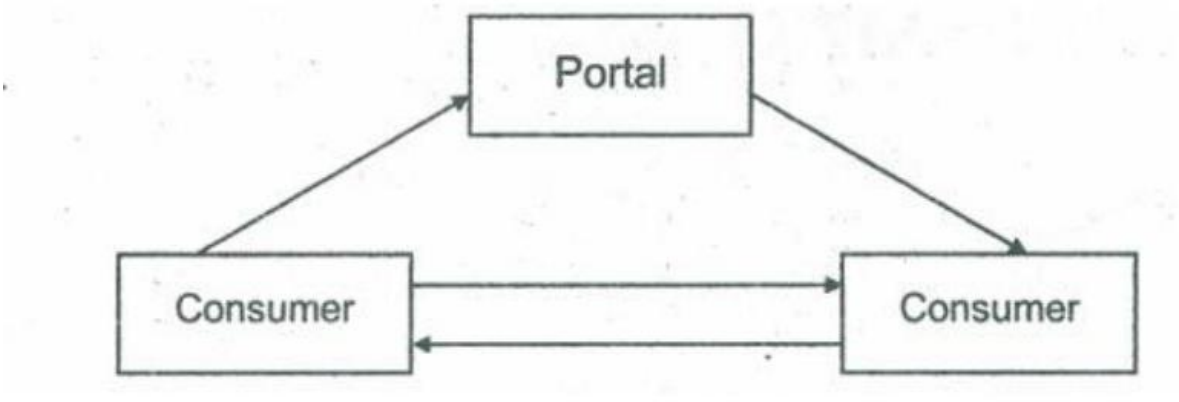
C2B:

It refers to Consumer to Business. In C2B e-commerce model a consumer approaches website showing multiple business organizations for a particular service. So, the consumer provides a good or some service to the company. Consumer may place an estimate of amount s/he wants to spend for a particular service. Interest rates of personal loan ·car loan provided.by various banks via website is an example. Business organization which fulfills the consumer's requirement within specified budget approaches the customer and provides its services.

Examples of C2B portals include http://www.razerfinish.com, http://www.reverseauction.com and http://www.priceline.com.



C2C: It refers to consumer to consumer. In C2C e-commerce model , the transactions are between consumers and consumers. No company is involved. It helps people sell their personal goods and assets directly to an interested party. An example of such transaction is between sellers and buyers of shares. In C2C model, organizations may be present as intermediaries. Examples of C2C portals include http://www.olx.in, and http://www.quickr.com.



5.

(a) Explain the benefits of e-commerce to organisations, customers and society at large.

Ans:

The following are the benefits of E-commerce to organizations:

• allows businesses to quickly and affordably acquire goods and services from other businesses.

• It may be less expensive to operate an online store than to keep a physical one. It decreases (by as much as 90 percent) the cost of creating, processing, distributing, storing, and retrieving information by digitizing the process. Also saves on rent, utilities and staff costs.

• Reduces telecommunication costs as Internet tools are used.

• It enables companies to run around the clock, giving clients the freedom to shop whenever it suits them.

• aids in the competition between small and large firms.

• reduces or does away with marketing distribution channels, lowering product costs and increasing vendor revenues

The following are the benefits of e-commerce to customers:

• gives customers the ability to quickly compare products and services online at a lower cost.

• allows clients to shop or transact from anywhere at any time, day or night. It allows customers to shop from the comfort of their homes, eliminating the need to travel to physical stores.

• Consumers can make well-informed purchasing selections by reading other buyers' feedback and ratings.

• Makes it possible for people to work and study at home.

• Can save time compared to visiting multiple stores to find specific items.

• provides them with more options than they might find otherwise.

The following are the benefits of E-commerce to society at large:

• makes it possible for people to work from home and travel less, which boosts productivity.

• By opening new markets and employment opportunities, it promotes economic growth.

• raises people's standard of living by enabling the sale of goods at reduced prices.

• gives people in rural and underdeveloped nations access to goods and services that would otherwise be impossible to purchase. This offers chances to improve medical treatment or to learn and obtain college degrees.

• Facilitates delivery of public services, such as government entitlements, reducing the cost of distribution and chance of fraud, and increasing the quality of social services, health care, and education.

(b) What is SSL ? Explain its working with the help of a figure.

Ans: It is a web security protocol that is used to establish an encrypted link between a web server and a web browser. It was developed by Netscape. It operates between the application and transport layers. It is commonly used to manage the security of message transmission on the Internet. It secures the data during online transactions or when transmitting confidential information. It is a solution to authentication, privacy and integrity problems and avoids attacks. SSL authenticates servers and users. It establishes encrypted link to hide the data transmitted thus leading to data integrity.

Characteristics of SSL:

• It operates at TCP/IP transport layer,

• It uses a dedicated TCPIIP socket,

• It encrypts the communications between the server and client when connection is established, and

• It requires a server certificate.

Working of SSL:

The following are various steps of SSL handshake:

1. Establishing a connection:

Client hello: SSL client attempts to connect to a SSL server (website secured with SSL) by sending a client hello message.

Server hello: Web server responds with a server hello.

2. Client requests web server to prove its identity.

3. The server sends its SSL certificate to the client. The certificate contains the server's public key and is signed by a trusted Certificate Authority (CA).

4. The client verifies the server's certificate against its list of trusted CAs. Accordingly, it sends a message to the server. If the certificate is valid, the client trusts that it is communicating with the right server.

5. If the server requires client authentication, it asks for "client certificate request".
6. Then the client sends its certificate.

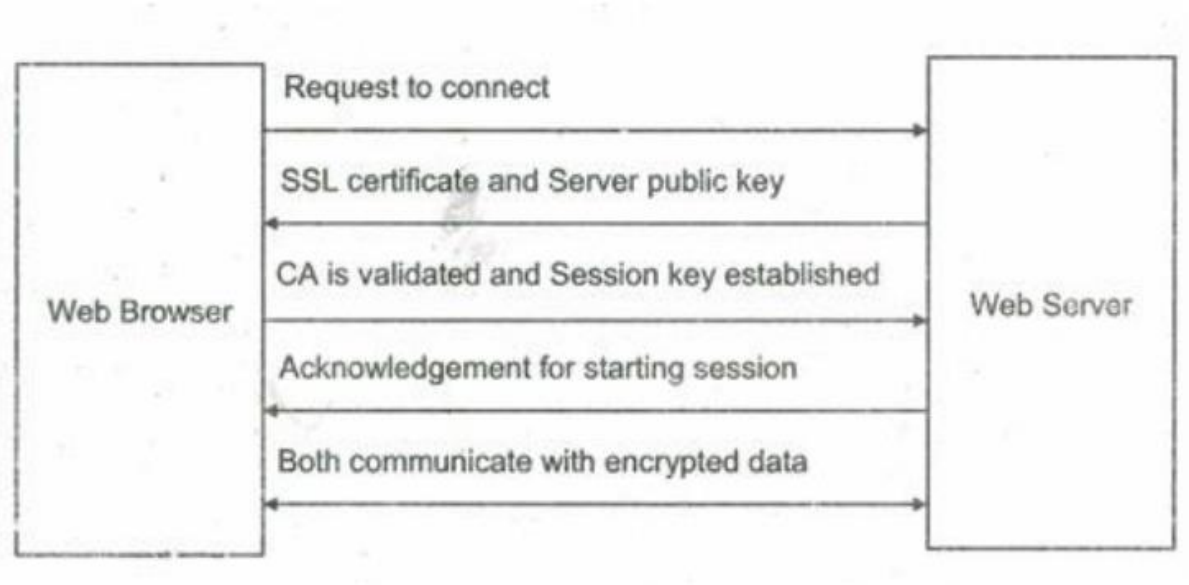
7. SSL server verifies the signature on the client certificate.

8. Client sends a digitally signed acknowledgement to start sharing.

9. Server sends a digitally signed acknowledgement to start sharing.

10. The data in encrypted form is shared between the server and browser and a secured session starts that protects message privacy, integrity and security. A secure session starts between server and client enabling data to be transmitted in encrypted form, thus ensuring privacy, integrity and security.

11. When the session ends, both parties can send a message to close the connection securely.



Working of SSL