Q2 a. What are the building blocks in the infrastructure of electronic commerce?

Ans: The building blocks in the infrastructure of electronic commerce are:

1. Computer systems, Servers, Networking devices etc.
2. Common business services, for facilitating the buying and selling process.
3. Messaging and information distribution, as a means of sending and retrieving information.
4. Multimedia content and network publishing, for creating a product and a means to communicate about it.
5. The information Superhighway- the very foundation- for providing the highway system along which all e-commerce must travel.
6. Public policy, to govern such issues as universal access, privacy, and information pricing.
7. Technical standards, to dictate the nature of information publishing, user interfaces, and transport in the interest of compatibility across the entire network.

b. What is e-commerce? What are the key differences between traditional commerce and e-commerce?

Ans: E-commerce refers generally to all forms of commercial transactions involving both organizations and individuals, that are based upon the electronic processing and transmission of data, including text, sound and visual images. It also refers to the effects that the electronic exchange of commercial information may have on the institutions and processes that support and govern commercial activities.

DIFFERENCE BETWEEN TRADITIONAL COMMERCE AND E-COMMERCE

	Traditional Commerce	E-Commerce
1. Location	It requires marketplace. Generally, it is preferred to set up stores where there is little competition for customers, and the location is convenient for the owners. For example, store might choose a mall location to gain access to all the traffic that flows through.	As on-line business requires market space, it is important that the Website is highly visible and easily found. Placement of links to the web site is an important determinant of traffic for an e-commerce store. For example, an e-commerce store could choose to locate itself in a virtual mall, such as Yahoo shopping to gain access to all the traffic that flows through the mall.

2. Size	Type of items, size of items, and the number of customers influence the size of the store. Stores expecting heavy traffic need to choose a location with adequate parking and entrances and walkways large enough to accommodate such traffic.	Size of e-commerce store is also influenced by products and customers. E-stores expecting heavy traffic need enough bandwidth, processing power, and data storage capacity to provide the proper service to their customers. Performance of e-commerce stores is affected by the bandwidth capacity.
3. Presentation	Great attention is paid to the store layout and customer service. Stores with elaborate arrangement and customer service may be able to charge a premium. Customer service often defines a customer's experience and is a leading driver of customer retention.	A well-planned user interface which is easy to navigate, and pleasing to the store's customers is crucial to successful Web selling. Customer service needs are most often addressed over the Web with internet applications such as e-mail, chat, or discussion groups. A Web Site which is organized effectively and comprehensively can be an excellent method for distributing static information to consumers.
4. Payment Mode	Cash, bank cheques , traveler cheques, credit card, debit card, i.e. physical funds	As such, an electronic medium prohibits the use of cash and encourages transactions that do not require physical funds but instead involve data transfer. E-buisness are forced to pay higher credit card fees.
5. Security	The security required is the physical security of cash, inventory, and customer data. Security	Significant technological experience is required to secure an e-commerce site. The scale of crimes

	technologies include covert cameras, alarms and security tags, and security guards.	that can be committed against an online store are far larger. Security technologies include passwords, encryption, screening routers, proxy servers.
6. Pricing	Mostly fixed pricing.	Mostly dynamic and customized pricing.
7. Product	Standard product.	Customized product.
8. Catalogue	Physical catalogue (inflexible)	Digital Catalogue.
9. Target	One to many selling.	Many to many selling.
10.Supply/demand driven	Supply (seller) driven.	Demand (buyer) driven.
11.Organisation	Hierarchical organization	Network organization.
12.Expansion	Tend to expand horizontally.	Tend to expand vertically.
13. Fulfilment	The customer typically has very little information about order status except a range of dates within which the order is likely to arrive.	Web customers often demand increased information about their purchases, such as order status and delivery tracking. E- businesses have to co-ordinate the activities of many different parties to ensure proper delivery.

Q3 a. What are Protocols? Explain the TCP/IP Internet protocol along with their functions?

Ans: Protocols are software that perform a variety of actions necessary for data transmission between computers. Stating more precisely, protocols are set of rules for inter-computer communication that have been agreed upon and implemented by various venders, users and standard bodies.
Ideally, a protocol standard allows heterogeneous computer to talk to each other.

The set of protocols that underlie the basic operation of the Internet are Transmission Control Protocol (TCP) and Internet Protocol (IP). These protocols establish fundamental rules about how data are moved across networks and how network connections are established and broken. The common acronym TCP/IP refers to the two protocols.

TCP/IP is a two-layered program. It includes rules that computers on a network use to establish and break connections. TCP controls the assembly of a message into smaller packets before it is transmitted over the Internet and controls the reassembly of packets once they reach their destination. The IP protocol includes rules for routing individual data packets from their source to their destination. IP handles all the addressing detail for each packet, ensuring that each is labeled with the correct destination address.

The architecture of TCP/IP protocol is divided into duty- based functional layers, the five layers function as one unit when delivering information from one location on the Internet to another. The lowest, most fundamental layer is the hardware layer, which handles the implications of individual pieces of equipment attached to the Internet. The highest layer is the application layer, where various Internet-serving applications run. Each layer provides services for the layer above it. While the exact details of the TCP/IP layers are beyond the scope of this text, it is important to note where some components lie within the architecture. The TCP protocol, for example, operates in the transport layer, and internet layer contains, among others, the IP protocol.

b. What is the difference between HTML and XML?

Ans:

1. HTML is an abbreviation for Hyper Text Markup Language while XML stands for extensible Markup Language. The differences are as follows:
2. HTML was designed to display data with focus on how data looks while XML was designed to be a software and hardware independent tool used to transport and store data, with focus on what data is.
3. HTML is markup language itself while XML provides a framework for defining markup language.
4. HTML is a presentation language while XML is neither a programming language nor a presentation language.
5. HTML is case insensitive while XML is case sensitive.
6. HTML is used for designing a web-page to be rendered on the client side while XML is used basically to transport data between the application and the database.
7. HTML has its own predefined tags while XML flexible is that custom tags can be defined and the tags are invented by the author of the XML document.
8. HTML is not strict if the user does not use the closing tags but XML makes it mandatory for the user the close each tag that has been used.
9. HTML does not preserve white space while XML does.
10. HTML is not displaying data, hence static but XML is about carrying information, hence dynamic.

c. What is an intelligent agent?

Ans: An agent is anything that can be viewed as perceiving its environment through sensors and acting upon that environment through effectors. Intelligent agents have been applied to electronic commerce, promising a revolution in the way we conduct business, whether business-to-business, business-to-customer or customer-to-customer. Agent technologies involved in buying and selling, followed by lists of Internet e-commerce agents. Several agent-mediated electronic commerce systems are analysed in the context of a general model of the buying process. Several lists of related Internet links should help readers to gather additional relevant information. Agent capabilities offer advanced functions in e-commerce.

Q4 a. What is E-marketing value chain? Explain its components with the help of a diagram?

Ans: Electronic commerce includes so many activities and transactions that it can be difficult for managers to decide where and how to use it in their businesses. One way to focus on specific business processes as candidate for electronic commerce is to break the business down into a series of value-adding activities that combine to generate profits and meet other goals of the firm. A value chain is a way of organizing the activities that each strategic business unit undertakes to design, produce, promote, market, deliver, and support the products or services it sells. For each business unit, the primary activities are as follow:

1. Identify customers: Activities that help the firm find new customers and new ways to serve existing customers, including market research and customer satisfaction surveys.
2. Design: Activities that take a product from concept to manufacturing, including concept research, engineering, and test marketing.
3. Purchase material and supplies: Procurement activities, including vendor selection, vender qualification, negotiating long-term supply contracts, and monitoring quality and timeless of delivery.
4. Manufacturing products or create services: Activities that transform material and labour into finished products, including fabricating, assembling, finishing, testing, and packaging.
5. Market and sell: Activities that give buyers a way to purchase and that provide inducements for them to do so, including advertising, promoting, managing salespersons, pricing, and identifying and monitoring sales and distribution channels.
6. Delivery: Activities that store, distribute, and ship the final products, including warehousing, handling materials, consolidating freight, selecting shippers, and monitoring timeless of delivery.
7. Provide after-sales service and support: Activities that promote a continuing relationship with the customer, including installing, testing, maintaining, repairing, fulfilling warranties, and replacing parts.

b. Explain the major methods of Internet marketing trends?

Ans: Internet marketing or the practice of promoting products and services online has become a vital tool for companies, both big and small. Internet marketing has constantly evolved to meet marketers and consumers, growing needs. Each year, it has become more flexible, measurable and affordable.

Internet marketing allows online marketers to keep track of their customers behavior and evaluates which types of marketing tactics work on them. Internet marketing also grants consumers nearly unlimited access to information and products at all hours of the day and from any location in the world. Furthermore, Internet marketing provides these benefits at only a fraction of the cost of traditional marketing.

Many methods of Internet marketing have evolved since marketers decided to take the leap from conventional marketing media to the World Wide Web. Here are some of the most popular:

1. Pay Per Click Advertising: This method of Internet marketing is highly dependent on the keywords that people enter in search engines. The ads that are consequently shown as part of the search results generated income for the search engines every time they are clicked. This method advertises only to the targeted market, thus making it one of the most efficient and most popular forms of Internet marketing.
2. Banner Ads: Banner ads are those flashing, rectangular ads your find on the uppermost portion of popular Web sites. Banner ads not only promote the advertisers Web site, they also generate traffic. Banner ads allow advertisers to monitor their customers
3. E-mail Marketing: E-mail marketing makes use of one of the most essential parts of marketing: the subscriber mailing list. This method of Internet marketing has long been established as an effective way of marketing products and of communicating with current and potential customers.
4. Search Engine Marketing: Promoting Web Sites through search engine marketing is integral to marketing online. This method is aimed at increasing traffic to a Web site by making the site more relevant in the directories of major search engines such as Google or Yahoo. Search Engine optimization involves improving the content, design, and other facets of a Web site so that it ranks higher on search engines.
5. Blog Marketing: Getting blogs to mention information about your product or service is one of the most effective means of Internet marketing. Blog speak directly to customers and use a language that everyone can understand. Since most blogs generally focus on a singular topic, try to drum up publicity on blogs whose content that is relevant to your site.
6. Article Marketing: Regularly publish quality content about your product or service and distribute this for free. Through this method of Internet marketing,

buisnessess can provide valuable information on what they have to offer and improve the popularity of their Web site at the same time.

Q5 a. What is firewall? Explain the different types of firewalls.

Ans: Firewall is a method of placing a device-a computer or a router-between the network and the Internet to control and monitor all traffic between the outside world and the local network. Typically, firewall allows insiders to have full access to services on the outside while granting access from the outside only selectively, based on log-on name, password, IP address, or their identifiers. A firewall system is usually located at a gateway point, such as site's connection to the internet, but can be located at internal gateways to provide protection for smaller collection of hosts or subsets. Firewalls come in several types and offer various levels of security. The different types of firewalls are:

1. IP packet screening routers: This is a static traffic routing service placed between the network service provider's router and the internal network. The traffic routing service may be implemented at an IP level via screening rules in a router or at an application level via proxy gateways and services. The firewall router filters incoming packets to permit or deny IP packets based on several screening rules. These screening rules, implemented into the routed, known source IP address, and incoming packet protocol.

2. Proxy application gateways: A proxy application gateway is a special server that typically runs on a firewall machine. Their primary use is access to applications such as World Wide Web from within a secure parameter. Instead of talking directly to external WWW servers, each request from the client would be routed to a proxy on the firewall that is defined by the user. The proxy knows how to get through the firewall. The proxy waits for a request from inside the firewall, forwards the request to the remote server outside the firewall, reads the response, and then returns it to the client.

3. Hardened firewall hosts: A hardened firewall host is a stripped-down machine that has been configured for increased security. This type of firewall requires inside or outside users to connect to the trusted applications on the firewall machine before connecting further. Generally, these firewalls are configured to protect against unauthenticated interactive log-ins from the external world. This, more than anything, helps prevent unauthorized users from logging into machines on the network.

b. Explain the four properties of E-cash?

Ans: E-cash must have the following four properties:

1. Monetary value: E-cash must have a monetary value; it must be backed by either cash (currency), bank authorized credit, or a bank- certified cashier's check. E-cash without proper bank certification carries the risk that when deposited, it might be returned for insufficient funds.
2. Interoperability: E-cash must be interoperable- that is, exchangeable as payment for other e-cash, paper cash, goods or services, lines of credit, deposits in banking accounts, bank notes or obligations, electronic benefit transfers, and the like.
3. Retrievability: E-cash must be storable and retrievable. The cash could be stored on a remote computer's memory, in smart cards, or in other easily transport standard or special-purpose devices.
4. Security: E-cash should not be easy to copy or tamper with while being exchanged; this includes preventing or detecting duplication and double-spending. Detection is essential in order to audit prevention is working.

Q6 a. What is supply chain management? What are the characteristics of supply chain management in electronic commerce?

Ans: Supply chain management (SCM) is an integrating process based on the flawless delivery of basic and customized services. SCM optimizes information and product flows from the receipt of order, to purchase of raw material, to delivery and consumption of finished goods. SCM plays an important role in the management of processes that cut across functional and departmental boundaries. SCM goes beyond organizational boundaries, reaching out to suppliers and customers. SCM is important in retailing because it helps to manage the demand and supply functions. In electronic commerce, SCM has the following characteristics:

1. An ability to source raw material or finished product from anywhere in the world.
2. A centralized, global buisness and management strategy with flawless local execution.
3. On-line, real-time distributed information processing to the desktop, providing total supply chain information visibility.
4. The ability to manage information not only within a company but across industries and enterprises.
5. The seamless integration of all supply chain processes and measurements, including third party suppliers, information systems, cost accounting standards, and measurement systems.
6. The development and implementation of accounting models such as activity-based costing that link cost to performance are used as tools for cost reduction.
7. A reconfiguration of the supply chain organization into high-performance teams going from shop floor to senior management.

b. What are the CRM capabilities supported by business intelligence? State in points.

Ans: CRM capabilities supported by business intelligence include the following:

- Click stream analysis
- Market basket analysis
- Customer segmentation.
- Cross-selling analysis
- Lifetime customer Value analysis
- Dimensional "what if" analysis
- Customer profiling analysis
- Cluster analysis
- Factor analysis
- Conjoint analysis
- Discriminate analysis
- Pricing analysis
- Market channel profiling

Q7 a. What do you understand by data warehousing? What are the characteristics of data warehousing?

Ans: Data Warehousing is combining data from multiple and usually varied sources into one comprehensive and easily manipulated database. Common accessing systems of data warehousing include queries, analysis and reporting. Because data warehousing creates one database in the end, the number of sources can be anything, provided that the system can handle the volume, of course. The final result, however, is homogeneous data, which can be more easily manipulated.

Data warehousing is commonly used by companies to analyze trends over time. The primary function of data warehousing is to facilitate strategic planning resulting from long-term data overviews. From such overviews, business models, forecasts, and other reports and projections can be made. Routinely, because the data stored in data warehouses is intended to provide more overview-like reporting, the data is read only. A data warehouse has significantly different features from other enterprise-wide systems, particularly in how data is stored, managed and manipulated. There are four key characteristics which separate the data warehouse from other major operational systems:

1. Subject Orientation: Data organized by subject.
2. Integration: Consistency of defining parameters.
3. Non-volatility: Stable data storage medium
4. Time-variance: Timeliness of data and access terms

b. What is the importance of knowledge Management?

Ans: Knowledge management has been recognized as an essential component of a proactively managed organization. The key concepts include converting data, organizational insight, experience and expertise into reusable and useful knowledge that is distributed and shared with the people who need it. Knowledge Management addresses business challenges and enchances customer responsiveness by creating and delivering innovative products or services; managing or enhancing relationships with existing and new customers, partners and suppliers; and administering or improving more efficient and effective work practices and processes. Effective solutions are aligned with the organization's business strategy and result in enhanced individual and organizational performance. Several factors that contribute to the importance of managing knowledge are referenced below:

- Competitive advantage: Knowledge can be an organization's most competitive advantage.
- Technology: Because of the tremendous advances in technology, enormous amounts of information can be disseminated to people regardless of their geographic location or time zone The speed of transmission and frequency in which this information is received requires an adaptable, skilled and educated workforce.
- Enhanced Decision-Making: Learning from and applying past experiences can accelerate the completion of future work and enhance the decision-making process.
- Minimize loss and risk: It improve organizational efficiency, or embrace innovation, knowledge management efforts and initializes add great value to an organization.
- Facilities: better, more informed decisions.
- Contributes: to the intellectual capital of an organization
- Encourages: the free flow of ideas which leads to insight and innovation.
- Eliminates: redundant processes, streamlines operations, and enhances employee retention.
- Improves: customer service and efficiency; and leads to greater productivity.

Q8 a. Explain the WAP architecture?

Ans: WAP is designed in a layered fashion so that it can be extensible, flexible, and scalable. As a result, the WAP protocol stack is divided into five layers:

- Application Layer
  Wireless Application Environment (WAE). This layer is of most interest to content developers because it contains, among other things, device specifications and the content development programming languages, XML and WML Script.
- Session Layer
  Wireless Session Protocol (WSP). Unlike HTTP, WSP has been designed by the WAP Forum to provide fast connection suspension and reconnection.
- Transaction Layer
  Wireless Transaction Protocol (WTP). The WTP runs on the top of a datagram service such as User Datagram Protocol (UDP) and is part of the standard suite of TCP/IP protocols used to provide a simplified protocol suitable for low bandwidth wireless stations.
- Security Layer
  Wireless Transport Layer Security (WTLS). WTLS incorporates security features that are based upon the established Transport Layer Security (TLS) protocol standard. It includes data integrity checks, privacy, service denial, and authentication services.
- Transport Layer
  Wireless Datagram Protocol (WDP). The WDP allows WAP to be bearer-independent by adapting the transport layer of the underlying bearer. The WDP presents a consistent data format to the higher layers of the WAP protocol stack, thereby offering the advantage of bearer independence to application developers.

Each of these layers provides a well-defined interface to the layer above it. This means that the internal workings of any layer are transparent or invisible to the layers above it. The layered architecture allows other applications and services to utilize the features provided by the WAP stack as well. This makes it possible to use the WAP-stack for services and applications that currently are not specified by WAP.

b. Write a brief journey from 1G to 4G in wireless communication.

Ans: Page No. 444-447 of Textbook

Q9 a. Write short notes on the following:

(i) Internet gambling

Ans: Page No. 500-501 of Textbook

(ii) Copyright

Ans: In the information age, virtually all intellectual creations can be protected by some form of intellectual property law. Intellectual property divides the universe of intellectual creations into three domains: copyrights, trademarks and patents. In a nutshell, copyright protects expression, trademark protects names, and patents protect ideas. Copyright protects creative expression that has been reduced to a tangible form, such as a book, piece of recorded music, computer program, screenplay, painting, photograph, or motion picture. Trademark protects brand names, literally marking items in trade. The idea behind trademark is to protect the consumer by giving them some confidence that items branded with a certain mark are authentic and come from where they purport to come on. Patent protects innovation. While we cannot copyright an idea, then we can patent one.

(iii) Flexible Web Page Design

Ans: Page No. 470-473 of Textbook

(iv) Fixed Web Page Design

Ans: Page No. 470-473 of Textbook

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E-Commerce –An Indian prospective, P. T. Jhoseph, S. J. Second Edition, PHI, 2007