E-COMMERCE

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FOREWORD

The author of the book "E-Commerce", Dr. Pratik Gite is an expert of Computer Engineering. He taught many subjects of Engineering e.g. Software Engineering, Computer Networks, Java Programming, Basic Computer Engineering, Principles of Programming Languages, Information Technology, Wireless Mobile Ad-hoc Network etc.

He worked with many Computer Programming Languages and Open Source Technologies. While writing this reference book, he worked actively with the matter of the book to ensure that the book is technically correct. This book meets the requirement of students of engineering, professional, management and other courses. This book is useful to refer the syllabus of Indian Universities.

"E-Commerce" *takes* a thorough approach to introduce the basic concepts of buying and selling over internet with security concerns. It covers not only the key features of E-Commerce but also the advanced topics such as Cyber stalking, Hacking, Biometric recognition, verification and identification, Money Laundering, Information theft, Logic Bomb, E-Governance , E-Readiness, E-Framework, E-Sewa, Data Mining and Data Warehouse etc. It also provides a solid foundation for understanding E-Commerce applications, Internet Security issues, Security of E Governance, Secure Socket Layer (SSL), Digital Signature etc.

The book has been provided review questions with numerous objectives questions and answer at the last of the chapter, which will be useful to the students. Although it is hoped all material in this book is accurate, the possibility exists that some omissions or errors may present. It will be grateful if receive suggestions from the users of this book and if they communicate the author for any errors they discover. It will help the author to improve the future editions of this book. Suggested improvements should be mail at **pratikgite135@gmail.com.**

✍ *Dr. Pratik Gite*

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Lastly I am grateful to all my colleagues, friends and students for inspiring me for this book.

✍ *Dr. Pratik Gite*

Dedicated to

My Parents,
Wife, Brothers
&
All Students
and
Teachers

ABBREVIATION

E	Electronic
ECOM	Electronic Commerce
EDI	Electronic Data Interchange
GPS	Global Positioning System
B2B	Business-to-Business
B2C	Business-to-Consumer
C2C	Consumer-to-Consumer
B2G	Business-to-Government
G2C	Government-to-Consumer
CRM	Customer Relationship Management
ERP	Resource Planning
COD	Cash On Delivery
EM	Electronic Market
IT	Information Technology
EFT	Electronic Funds Transfer
VAN	Value Added Network
VADS	Value Added Data Service
BACS	Bankers Automated Clearing Service
URL	Uniform Resource Locator
PIN	Personal Identification Number
CNP	Cardholder Not Present
POS	Point of Sale
CC	Credit Card
PKI	Public Key Infrastructure
RA	Registration Authority
CA	Certification Authority
SSL	Secure Socket Layer
SET	Secure Electronic Transaction
DES	Data Encryption Standard
CSR	Certificate Signing Request
LDAP	Lightweight Directory Access Protocol
HTTP	Hyper Text Transfer Protocol
DOS	Denial Of Service
DDOS	Distributed Denial-Of-Service
LAN	Local Area Network
ICT	Information and Communication Technology
KDD	Knowledge Discovery in Databases
OLAP	On-Line Analytical Processing

DEFINITIONS

E-commerce: Electronic commerce is the process of marketing, buying and selling of product and services over the Internet.

Electronic Data Interchange (EDI): EDI is the transfer of structured data, by agreed message standards, from one computer system to another, by electronic means.

Business-to-Business (B2B): B2B is a business between Whole-Sale and Retail over internet.

Business-to-Consumer (B2C): In B2C, businesses directly sell to the end customer using internet.

Consumer-to-Consumer (C2C): In C2C, if one has something to sell, then he can get it listed at an auction site, and others can bid for.

Business-to-Government (B2G): B2G includes services such as filling IT returns by corporate houses / corporate taxes/renewal of trade licenses, etc.

Government-to-Consumer (G2C): Record of land revenue and sale documents, issued of certificates & licenses, renewal of driving licenses, passports, filling of income tax returns, property returns, filling of complaints, payment of bills, payment of dues etc. by individuals are some of the services, which can be put in this category.

E-business: E-business is Electronic business which is basically the conduct of business processes on the Internet.

e-Market: The use of information and communication technologies to provide geographically dispersed traders with the information necessary for the fair operation of the market is known as electronic market.

Value Chain: Value chain is a link of relationship between manufacturers, component suppliers, wholesalers, retailers and the logistic infrastructure that relate them.

Procurement: Procurement is responsible for negotiating quality supplies at an acceptable price and with reliable delivery.

CRM: Managing the customers is known as Customer Relations Management (CRM).

eCRM: Electronic Customer Relationship Management concerns all forms of managing relationships with customers making use of Information Technology (IT).

E-Commerce strategy: E-Commerce strategy is a basic term used for defining both your short-term and long-term e-business goals and involves careful and skilled planning.

Corporate Strategy: 'Corporate strategy is the pattern of major objectives, purpose or goals and essential policies or plans for achieving those goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be.'

Trade Cycle: Trade cycle is the process involved between two business organizations for online trading of goods and services starts from pre-sales and finishes till it reaches after-sales stage.

Inter Organisational E-Commerce: Inter Organisational E-Commerce is the use of internet for searching, purchasing and after sales of Electronic Commerce.

VADS: VADS are centred on a computer system with communication facility including each user of the system, there are two files:

Online Payment: Transaction of goods and services using the web, without cash is known as online payment.

E-visibility: E-Visibility enables getting the site noticed and the online customers visiting the store.

Portals: Portal is the first page on loading the browser and connecting to the web from which the user accesses the facilities of the internet.

Search Engines: A search engine is a standard way to find any website and that includes e-Shops.

Links: Hypertext link enables online adverts on the web. It can be a good way of getting customers.

Virtual Auction: Virtual auction is a way to provide a touch to the seller with the buyer with small advertisement using the interactive capabilities of the net for second hand goods to be sold over internet.

e-Store: e-Stop is a complete eCommerce application that enables to do shopping using either a simple web page or a highly complex site offering a range of products and services including online ordering and payment over the internet instantly and with ease.

e-Shopping: Purchasing goods and services using internet is known as e-Shopping.

e-Cash: e-Cash is also known as network money. An e-Cash account is maintained for making payment for e-Commerce transaction.

Public Key Infrastructure: Public Key Infrastructure is a technology used in modern security mechanisms on the internet. It covers a cryptographic system including encryption, asymmetric key cryptography, message digest and digital signature.

Cryptography: Art and science of achieving security by encoding messages to make them non-readable is known as cryptography.

Cryptanalysis: The technique of decoding messages from a non-readable format back to readable format without knowing how they were initially converted from readable format to non-readable format.

Cryptology: A combination of cryptography and cryptanalysis is known as cryptology.

Plain Text: Any communication in the language that we speak- that is the human language, takes the form of plain text or clear text.

Cipher text: When a plain text message is codified using any suitable scheme, the resulting message is called as cipher text.

Encryption Algorithm: Step by step procedure to convert plaintext into cipher text and vice versa is known as encryption algorithm.

Key: Stream of bit used in cryptographic algorithm for encryption and decryption is called as a key.

Encryption: The process of encoding plain text message into cipher text message is called as

encryption.

Decryption: The process of decoding cipher text message into plain text message is called decryption.

Brute force attack: Brute force attack is a method of defeating a cryptographic scheme by trying a large or all possible number of possibilities.

Symmetric Key Cryptography: In Symmetric Key Cryptography, only one key (same key) is used for both encryption and decryption. Both the parties (sender and receiver) agree upon the key before any transmission begins.

Asymmetric Key Cryptography: It Asymmetric Key Cryptography, a key pair (Two different Keys), is used i.e. one key is used for encryption and only the other corresponding key is used for decryption.

Threat: Any potential event or act that could cause injury to employee or assets.

Risk: The chance of a vulnerability being exploited.

Vulnerability: A cause to security that could permit a threat to make injury.

Digital Signature: A digital signature is used to authenticate the sender of the message and to check the integrity of the message, i.e. that it has not been altered in transit.

Digital Certificate: Digital certificate is a document such as our passport or driving license. It is basically a computer file such as *ABC.cer* and is certified by a trusted agency called certification Authority (CA).

Secure Socket Layer (SSL): It is an internet protocol used for exchange of information between browser & server developed by Netscape Corporation.

Secure Electronic Transaction (SET): The Secure Electronic Transaction (SET) is an open encryption and security specification that is designed for protecting credit card transactions on the Internet.

Cyber Law: Cyber Law is the law governing computers and the Internet.

Cyber stalking: Cyber stalking is a criminal offense with use of the Internet or other electronic means to stalk or harass an individual, a group of individuals, or an organization.

Defamation: The term defamation is used to define the injury that is caused to the reputation of a person in the eyes of a third person.

Hacking: Hacking is the practice of modifying the features of a computer system, in order to accomplish a goal outside of the creator's original purpose.

Hacker: A hacker is a person who tries to gain un-authorized access to your computer.

Cracker: A hacker expert at accessing password-protected computers, files, and networks is known as "crackers."

Spam: Spam is any kind of unwanted email sent in bulk by companies

Biometric: Biometric is a method of recognizing an individual based on measurable characteristic.

Recognition: Recognition is a generic term, and does not necessarily imply either

verification or identification. All biometric systems perform "recognition" to "again know" a person who has been previously enrolled.

Verification: Verification is a task where the biometric system attempts to confirm an individual's claimed identity by comparing a submitted sample to one or more previously enrolled templates.

Identification: Identification is a task where the biometric system attempts to determine the identity of an individual.

Money Laundering: Money Laundering is the process of creating the appearance that large amounts of money obtained from serious crimes (e.g. drug trafficking or terrorist activity) originated from a legitimate source.

Information theft: Information theft or identity theft is a crime of obtaining the personal or financial information of another person for the sole purpose of assuming that person's name or identity in order to make transactions or purchases.

Denial of Service (DoS): An attack, in which an attacker attempts to prevent legitimate users from accessing information or services, is known as Denial of Service attack.

Logic Bomb: Logic bomb is a malware that is triggered by a response to an event, such as launching an application or when a specific date/time is reached.

E-Governance: E-Governance is nothing but the use of Information Communication Technologies (ICT) in order to improve the interactions within the government departments and between citizens and government.

E-Government: E-Government is defined as the use of Information and Communication Technologies (ICTs) by governments as applied to the government functions.

E-Readiness: E-Readiness is defined as the ability of any to take advantage of the Internet as an engine of economic growth and human development.

E-government readiness: E-government readiness can be defined as the readiness of a government to use Information and Communication Technologies to exchange information and provide services to business and citizens.

E-Framework: E-Framework is a software framework for e-commerce applications which provides an environment for building e-commerce applications.

e-Sewa: e-Sewa is a unique service provided by the government which gives convenient access to authentic record about individual from a particular department.

Data Mining: Data Mining refers to extracting or "mining" knowledge from large amounts of data.

Data Warehouse: A Data Warehouse is a repository of information collected from multiple sources, stored under a unified schema, and which usually resides at a single site. Data warehouses are constructed via a process of data cleansing, data transformation, data integration, data loading, and periodic data refreshing.

SYLLABUS

Chapter – 1 (REVIEW OF E-COMMERCE)

Introduction to E-Commerce, Scope of e-Commerce technology, Need of E-commerce, The Methodology of E-Commerce, Types of E-Commerce, Various Models of e-Commerce, E-business, Role of website in E-commerce, e-Market, Value chain, Porter's value chain model, Inter-organizational value chain, First mover advantage and sustainable competitive advantage, CRM, Applications of e-commerce, E-Procurement as an application of E-commerce

Chapter – 2 (IT STRATEGY)

Introduction, e-Commerce strategy, scope of e-Commerce as a technology, Inter-organizational transactions, Credit Transaction Trade Cycle, Trade Cycle, Generic Trade Cycles, e-Commerce Strategy Formulation, e-Commerce implementation, Variety of Transaction, Electronic Markets & its effects, e-Commerce Evaluation

Chapter – 3 (INTER ORGANISATIONAL E-COMMERCE)

Introduction, EDI : definition, need, uses and benefits, EDI Technology, EDI Layered Architecture, Elements of an EDI system, EDI Standards, Characteristics and application areas of EDI, EDI Process, Advantages and Drawback of EDI, Security Aspects of EDI, EDI Communication, VADS

Chapter – 4 (E-COMMERCE TECHNOLOGIES)

Introduction, Internet Banking, Supply Chain, Online Payment, E-visibility, Search Engines, Virtual Auction, e-Store, Delivery of the goods, e-Shopping, Website Evaluation Model, e-Cash

Chapter – 5 (E-COMMERCE SECURITY)

Public Key Infrastructure, Cryptography, Cryptanalysis and Cryptology, Symmetric Key Cryptography, Asymmetric Key Cryptography, Threat, Risk and Vulnerability, Digital Signature, Digital Certificate , Registration Authority (RA) and Certification authority (CA), Secure Socket Layer (SSL), Internet e-Commerce Security, SET Protocol

Chapter – 6 (Security Issues over Internet)

Introduction, Introduction of Cyber Laws about Internet Fraud, Cyber Stalking, Cyber Defamation, Hacking, Spamming, Biometric, Recognition, verification and identification, IT Act 2000, Money Laundering, Information Theft, Denial of Service (DoS), Logic Bomb, Computer Ethics and Good Practices, Security Concern in E-commerce, SSL, E-Governance, E-Government, E-Government System Security, E Commerce Challenges, E-Readiness, E-Government Readiness, E-Framework, e-Seva, Data Mining, Data Warehousing

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