Paper Code: CCCS205	Total Credit : 4
Title of Paper: Windows Programming Using VB.Net	Total Marks: 70
	Time: 3 Hrs

Unit	Description	Weighting
I	Overview of a .net framework: versioning and deployment, Memory management, Cross-Language integration, Metadata, IL dissemblers, The IDE components like IDE menu, CLR, CTS, Garbage Collector, Toolbox, Solution explorer, Property window, Output window, Task list window. Namespace and the imports keyword, the AssemblyInfo.vb file Variables (declaration, types, conversion), Constants, Arrays, Variables as Objects, Operators	20%
П	Flow control statements, Looping Statements, Modular coding :Procedures and Functions, appearance of forms, Loading and showing forms, Designing menus, Building dynamic forms at runtime, MDI application	20%
III	TextBox control, ListBox control, CheckedListBox, ComboBox, Controls, ScrollBar and TrackBar Control, Common Dialog control, Color Dialog control, Open and Save as Dialog control, Print Dialog Box, RichTextBox control, Listview, TreeView control	20%
IV	Building class, encapsulation and abstraction, Inheritance, Polymorphism. Sorting and searching in array, Arraylist collection, Hash Table, SortedList class, Char class, String class, DateTime class, Time Span class, Directory class, File class, DirectoryInfo class, FileInfo class.	20%
V	Architecture of ADO.NET, Creating a Data Set, Data binding, Data Adapter object, Command object and Data Reader object. Grid View Control	20%

Basic Text & Reference Books :-		
1.	Mastering Visual Basic .NET by E Petroutsos, BPB	
2.	Visual Basic .NET Programming by Peter Aitken's, Dreamtech Press	

Paper Code: CCCS205	Total Credit : 4
Title of Paper: Windows Programming Using VB.Net	Total Marks: 70
	Time: 3 Hrs

Unit	Description		Total Marks
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Short / Medium Question of VB.Net Programs. (With Internal Option)	06	14
	Q.2 (B) Medium / Long Questions. (With Internal Option)	08	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.3 (B) Medium / Long Questions. (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions of VB.Net / ADO.Net Programs. (With Internal Option)	08	

Paper Code: CCCS206	Total Credit : 4
Title of Paper: Database Management System	

Unit	Description	Weighting
I	Basic Concepts: data, database, database systems, database management systems, instance, schema, Database Applications, Purpose and Advantages of Database Management System (over file systems), View of Data (Data Abstraction, Data Models), Database Languages (DML, DDL), Relational Databases (Tables, DML, DDL)	20%
II	Design Phases, Entity Relational Model (Entity Sets, Relationship Sets, Attributes), Constraints (Mapping Cardinalities, Keys, Participation Constraints), Entity Relationship Diagram, Weak Entity Set, Extended E-R Features (Generalization, Specialization and Aggregation), E-R Notations, Examples of ERD	20%
III	Functional Dependency and Normalization (1NF, 2NF and 3NF)	20%
IV	Structure of Relational Databases (Basic Structure, Database Schema, Types of Keys), Fundamental Relational Algebra Operations (Select, Project, Union, Set Difference, Cartesian Product and Rename Operator), Additional Relational Algebra Operators (Set Intersection, Natural Join, Division Operator, Assignment Operator), Examples	20%
V	Transaction Concept (Transaction State, Basic Definitions, ACID Property), Concurrent Execution (Reasons of Concurrent Execution, Serial and Concurrent Schedule), Serializability (Conflict and View Serializability), Recoverability of Schedules (Recoverable Schedule and Cascade-less Schedule), Lock-based Protocol (Types of Lock and Deadlock Concept), Two-Phase Locking Protocol. Working with MS-Access	20%

Bas	Basic Text & Reference Books :-		
1.	Silberschatz, Korth, Sudarshan, "Database System Concepts", 5th Edition, McGraw Hill Publication		
2.	Silberschatz, Korth, Sudarshan, "Database System Concepts", 5th Edition, McGraw Hill Publication		
3.	MS-Access Manuals.		

Paper Code: CCCS206	Total Credit : 4
Title of Paper: Database Management System	Total Marks: 70
	Time: 3 Hrs

Answer the Following. ons, Blanks, Full Forms, True/False, Match the Following) Medium / Long Questions. (With Internal Option) Short / Medium Questions. (With Internal Option) Medium / Long Questions on E-R Diagram. aternal Option)	06 08 06	14
Short / Medium Questions. (With Internal Option) Medium / Long Questions on E-R Diagram.	06	14
Medium / Long Questions on E-R Diagram.		14
	08	!
nernal Option)		1
Case Study of Normalization (With Internal Option)	06	14
Case Study of Normalization (With Internal Option)	08	
Short / Medium Questions (With Internal Option)	06	14
Medium / Long Questions. (With Internal Option)	08	
Short / Medium Questions (With Internal Option)	06	14
Medium / Long Questions. (With Internal Option)	08	
S	Case Study of Normalization (With Internal Option) Short / Medium Questions (With Internal Option) Medium / Long Questions. (With Internal Option) Short / Medium Questions (With Internal Option)	Case Study of Normalization (With Internal Option) Chort / Medium Questions (With Internal Option) Medium / Long Questions. (With Internal Option) Chort / Medium Questions (With Internal Option) O6

Paper Code: CCCS207	Total Credit : 6
Title of Paper: Practical Based on CCCS205	Total Marks :
	70
	Time: 3 Hrs

Unit	Description	Weighting
	Create a Visual Basic .Net program which used to find area of	
	circle. Area = $PI * r^2$	
	2. Create a Visual Basic .Net program which used to find area of	
	rectangle. Area of rectangle = $l*b$	
	3. Create a Visual Basic .Net program which used to find area of	
	Triangle. Area of Triangle =1/2*Base * Height	
	4. Create a Visual Basic .Net program which used to find	
	circumference of circle. circumference of circle = $2 \times PI \times r$	
	5. Create a Visual Basic .Net program which used to find perimeter	
	of rectangle. Perimeter of rectangle=2(l+b)	
	6. Create a .NET program which used to determine that student is	
	pass or fail. Marks of student input by user. As given below. (using If)	
	7. Create a Visual Basic .Net program which used to determine that	
	number is positive or negative or zero. Change the backcolor of	
	textbox based on result.	
	8. Create a Visual Basic .Net program which used to determine that	
	given number is numeric or not? Print result in a label. (Hint:	
	IsNumeric function)	
	9. Create a Visual Basic .Net program which used to determine that	
	input string is valid date or not. (Hint: IsDate)	
	10. Create a .NET program which used to display name of day based	
	on input value by user. For example if user enter 1 then display Sun, 2 then Mon as on. Using if statement.	
	11. Create a .NET program which used to display 1 to 10 in a textbox	
	control Using While Loop	
	12. Create a Visual Basic .Net program which used to display 1 to 10	
	in a textbox using various Do loop Display using Do while entry	
	controlled as well as exit controlled Display using Do until entry	
	controlled as well as exit controlled	
	13. Create a Visual Basic .Net program which will print even and odd	
	numbers up to given number. Also print sum of even numbers and	
	odd numbers.	
	14. Create an application which allow user to select gender of a	
	student as well as year of student. Display output as given below.	
	Such as Male – SecondYear in a single textbox control.	
	15. For an Employee table containing EmpNo, EmpName & EmpSal,	
	design a form that allows user to go through all employees using	
	suitable button. Also include buttons that show total number of	
	employees and maximum salary. [Use Data Reader]	
	16. For students table, containing Roll, Name and Marks, design a	
	form that allows add, modify and delete operations using suitable	
	buttons. Provide navigation facility to access First, Last, Next &	
	Previous records. Also add searching & sorting facilities on	
	specified columns. [Use BindingSource and BindingNavigator feature]	
	17. Assuming 2 tables – Dept (DeptNo, DeptName) and Employee	
	(EmpNo, EmpName, EmpSal, DeptNo) where each employee	
	belongs to a department. Display list of departments in combo	
	box using complex data binding. When user selects a department,	

all employees from that department should be displayed in Grid. Also add a "Print" button that displays the list of employees in selected department using crystal report. [Use BindingSource and	
BindingNavigator feature]	

Paper Code: CCCS207	Total Credit: 4
Title of Paper: Practical Based on CCCS205	Total Marks: 70
	Time: 3 Hrs

Unit	nit Description		Total Marks
Unit I to V	Q.1(A) Viva Voce	20	70
	Q.1 (B) Practical	50	

Paper Code: CCCS208	Total Credit: 4
Title of Paper: Practical Based on CCCS206 and Elective Courses	Total Marks:
	70
	Time: 3 Hrs

Sample Practical List (MS-Access)

1. Create the tables described below:

(Assign appropriate Primary Key and Foreign Key constraints).

(i.) Table Name : Salespeople

Commission must be between 0 and 1.

SNUM	SNAME	CITY	COMMISSION
1001	Peel	London	.12
1002	Serres	San Jose	.13
1004	Motika	London	.11
1007	Rifkin	Barcelona	.15
1003	Axelrod	New York	.10

(ii) Table Name: Customers

CNUM	CNAME	CITY	RATING	SNUM
2001	Hoffman	London	100	1001
2002	Giovanni	Rome	200	1003
2003	Liu	San Jose	200	1002
2004	Grass	Berlin	300	1002
2006	Clemens	London	100	1001
2008	Cisneros	San Jose	300	1007
2007	Pereira	Rome	100	1004

(iii) Table Name: Order

ONUM	AMOUNT	ODATE	CNUM	SNUM
3001	18.69	10/03/1990	2008	1007
3003	767.19	10/03/1990	2001	1001
3002	1900.10	10/03/1990	2007	1004
3005	5160.45	10/03/1990	2003	1002
3006	1098.16	10/03/1990	2008	1007
3009	1713.23	10/04/1990	2002	1003
3007	75.75	10/04/1990	2004	1002
3008	4723.00	10/05/1990	2006	1001
3010	1309.95	10/06/1990	2004	1002
3011	9891.88	10/06/1990	2006	1001

- 2. Display the structure of (i) Salespeople, (ii) Customers and (iii) Order table.
- 3. Check how many tables are there in your logins.
- 4. List all the records of (i) Salespeople, (ii) Customers and (iii) Orders table.
- 5. Create the tables described below:

(i.) Table Name : **Dept**

Column Name	Data Type	Size	Description
DEPTNO	NUMBER	3	Primary Key

DNAME	VARCHAR 2	20	
LOCATION	VARCHAR 2	20	Location must be either 'new york' or 'chicago'

(ii). Table Name: Employee

Column Name	Data Type	Size	Description
ENO	NUMBER	4	Primary Key
ENAME	VARCHAR2	20	Unique
JOB	VARCHAR2	20	Not Null
MGR	NUMBER	4	
HIREDATE	DATE		
SALARY	NUMBER	6,2	Max. value = 5000
COMMISSION	NUMBER	6,2	
DEPTNO	NUMBER	3	FK Must be either 10 or 20 or 30

- 6. Insert appropriate records into the above tables.
- 7. Write queries for the following:
 - 1. List all records of employee table.
 - 2. Display eno, ename, job, salary and deptno from employee table.
 - 3. List eno, ename, job, salary and deptno of all employees belonging to deptNo 10.
 - 4. List eno, ename, job, salary and deptno of all employees having salary greater than 2200.
 - 5. List eno, ename, job, salary and deptno of all employees having salary less than 3100or belonging to deptno 30.
 - 6. List eno, ename, job, salary and deptno of all employees having salary less than 3000 and belonging to deptno 30.
 - 7. Display ename of all employees whose name starts with 'M' or 'J'.
 - 8. List eno, ename, job, salary and deptno of all employees having job of 'clerk' or 'manager'.
 - 9. List eno, ename, job, salary, commission and deptno of all employees who are receiving some commission.
 - 10. List eno, ename, job, salary and deptno of all employees having salary as 1250 or 2450 or 3000.
 - 11. List eno, ename, job, salary and deptno of all employees having minimum salary 1500 and maximum salary 3000.
 - 12. List eno, ename, salary, commission, total salary(salary + commission) of all employees.
 - 13. List ename and salary of all employees in such a way that the employee who is earning maximum is displayed first.
 - 14. Display all employees who are clerk or earning salary greater than 2400.
 - 15. Add one more column 'city varchar2(5)' to the employee table.

Paper Code: CCCS208	Total Credit: 4
Title of Paper: Practical Based on CCCS206 and Elective Courses	Total Marks: 70
	Time: 3 Hrs

Unit	Description		Total Marks
Unit I to V	Q.1(A) Viva Voce	20	70
	Q.1 (B) Practical	50	

Paper Code: CECS205	Total Credit : 4
Title of Paper: Internet and Web Programming	Total Marks: 70
	Time: 3 Hrs

Unit	Description	Weighting
	A brief Introduction to the Internet, Intranet, Extranet. Internet services, Working of Internet, HTTP (Hypertext Transfer	
I	Protocol) The World Wide Web, TCP/IP, The Web Browsers,	20%
	Search Engine and its categories, URL (Uniform Resource	
	Locator), LAN, WAN, MAN.	
	Types of websites. Case Study on Government Websites	
	HTML (Hyper Text Markup Language). Understanding HTML,	20%
	Create a Web Page, Basic HTML Tags, Linking to other Web	
II	Pages, Publishing HTML Pages, Text Alignment and Lists,	
	Text Formatting Fonts Control, E-mail Links and link within a	
	Page	
	Creating Table, Creating HTML Forms, Creating	20%
III	FramesCreating Web Page Graphics, Putting Graphics on a	
	Web Page, Custom Backgrounds and Colors, Creating	
	Animated Graphics	
	Defining Style with HTML Tags, Features of Style Sheet.	20%
IV	Cascading Style Sheets (CSS), Types of CSS.	
Introduction to JavaScript, Using operators, control statemen		
	Java Script: User defined functions, working with built-in	20%
	objects: window object, document object, string object, array	
V	object and date object. Handling events in JavaScript.	
	A brief Introduction to Dreamweaver, Planning and creation of	
	your Site, Site Management	

Bas	Basic Text & Reference Books :-			
1.	Web Enabled Commercial Applications development using HTML, DHTML, JavaScript,			
	PERL CGI., by Ivan Bayross, BPB Publication			
2.	Manuals of Dreamweaver			

Paper Code: CECS205	Total Credit : 4
Title of Paper: Internet and Web Programming	Total Marks: 70
	Time: 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	
	Q.2(B) Short / Medium Questions (With Internal Option)	08	14
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	
	Q.3(A) Short / Medium Questions (Based on Table Creation) (With Internal Option)	08	14
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (Based on Java Script) (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

Paper Code: CECS206	Total Credit : 4
Title of Paper: Cyber Security	Total Marks: 70
	Time: 3 Hrs

Unit	Description	Weighting
	Introduction, Cybercrime: Definition and Origins of the Word, Cybercrime and Information Security, Who are Cybercriminals? Classifications of Cybercrimes: E-Mail Spoofing, Spamming,	20%
	Cyber defamation, Internet Time Theft, Salami Attack/Salami Technique, Data Diddling, Forgery, Web Jacking, Newsgroup	
I	Spam/Crimes Emanating from Usenet Newsgroup, Industrial	
	Spying/Industrial Espionage, Hacking, Online Frauds, Pornographic Offenses, Software Piracy, Computer Sabotage, E-Mail Bombing/Mail Bombs, Usenet Newsgroup as the Source of Cybercrimes, Computer Network Intrusions, Password	
	Sniffing, Credit Card Frauds, Identity Theft	
п	Introduction, Categories of Cybercrime, How Criminals Plan the Attacks: Reconnaissance, Passive Attack, Active Attacks, Scanning/Scrutinizing gathered Information, Attack (Gaining and Maintaining the System Assoc) Social Engineering and	20%
11	and Maintaining the System Access), Social Engineering, and Classification of Social Engineering, Cyberstalking: Types of Stalkers, Cases Reported on Cyberstalking, How Stalking	
	Works? Real-Life Incident of Cyberstalking, Cybercafe and	
	Cybercrimes, Botnets: The Fuel for Cybercrime, Botnet, Attack Vector Cloud Computing: Why Cloud Computing?, Types of	
	Services, Cybercrime and Cloud Computing.	
III	Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit Card Frauds in Mobile and Wireless	20%
	Computing Era: Types and Techniques of Credit Card Frauds, Security Challenges Posed by Mobile Devices, Registry	
	Settings for Mobile Devices Authentication Service Security:	
	Cryptographic Security for Mobile Devices, LDAP Security for Hand-Held Mobile Computing Devices, RAS Security for	
	Mobile Devices, Media Player Control Security, Networking	
	API Security for Mobile Computing Applications, Attacks on	
	Mobile/Cell Phones: Mobile Phone Theft, Mobile Viruses, Mishing, Vishing, Smishing, Hacking Bluetooth, Mobile	
	Devices: Security Implications for Organizations: Managing	
	Diversity and Proliferation of Hand-Held Devices, Unconventional/Stealth Storage Devices Threats through Lost	
	and Stolen Devices, Protecting Data on Lost Devices, Educating	
	the Laptop Users	200/
IV	Introduction, Proxy Servers and Anonymizers, Phishing: How Phishing Works? Password Cracking: Online Attacks, Offline	20%
	Attacks, Strong, Weak and Random Passwords, Random	
	Passwords, Keyloggers and Spywares: Software Keyloggers, Hardware Keyloggers, Antikeylogger, Spywares, Virus and	
	Worms: Types of Viruses, Trojan Horses and Backdoors:	
	Backdoor, How to Protect from Trojan Horses and Backdoors,	
	Steganography: Steganalysis, DoS and DDoS Attacks: DoS Attacks, Classification of DoS Attacks, Types or Levels of DoS	
	Attacks, Tools Used to Launch DoS Attack, DDoS Attacks,	
	How to Protect from DoS/DDoS Attacks, SQL Injection: Steps for SQL Injection Attack, How to Avoid SQL Injection Attacks	
	Introduction, Why Do We Need Cyberlaws: The Indian	20%
V	Context, The Indian IT Act: Admissibility of Electronic	

Records: Amendments made in the Indian ITA 2000, Positive Aspects of the ITA 2000, The Weak Areas of the ITA 2000, Challenges to Indian Law and Cybercrime Scenario in India, Consequences of Not Addressing the Weakness in Information Technology Act Amendments to the Indian ITA 2008: Overview of Changes Made to the Indian IT Act, Cybercafe-Related Matters Addressed in the Amendment to the Indian IT Act, State Government Powers Impacted by the Amendments to the Indian IT Act, Impact of IT Act Amendments Impact Information Technology Organizations, Cybercrime and Punishment, Cyberlaw, Technology and Students: Indian Scenario

Bas	Basic Text & Reference Books :-				
1.	"Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Nina				
	Godbole, Sunit Belapur, Wiley India Publications, April, 2011				
2.	"Cyberlaw: The Indian Perspective" by Pavan Duggal, Saakshar Law Publications, Delhi.				
3.	Indian Legislation On Cyber Crime, S.R. Sharma, Anmol Publications				
4.	Cyber Laws, Yatindra Singh, Universal Law Publishing Co				
5.	The Information Technology Act, 200 – Universal Law Publishing Co				

Paper Code: CECS206	Total Credit : 4
Title of Paper: Cyber Security	Total Marks: 70
	Time: 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	
	Q.2(B) Short / Medium Questions (With Internal Option)	08	14
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	
	Q.3(A) Short / Medium Questions (With Internal Option)	08	14
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

Paper Code: CECS207	Total Credit: 3
Title of Paper: MIS and ERP	Total Marks: 70
	Time: 3 Hrs

Unit	Description	Weighting
I	Overview of Information Systems, Information Systems	20%
	Hierarchy, Types of Information Systems like OAS, TPS, DSS,	
	KMS etc IT in Business Intelligence, Overview of Data	
	Warehousing, Overview of Data Mining, Overview of DR	
	(Disaster Recovery), BCP (Business Continuity Planning)	
II	Enterprise Resource Planning (ERP): introduction, history,	20%
	advantages Enterprise: introduction, business modeling,	
	integrated data model, integrated management information	
	Basic concepts of ERP.Risks and benefits of ERP	
III	Introduction to MRP, MRP-II and ERP	20%
	Business Process Reengineering (BPR)	
	Data warehousing, data mining and Online Analytical Processing	
	(OLAP). Product Life Cycle Management (PLM), Supply Chain	
	Management (SCM), Customer Relationship Management (CRM)	
IV	Marketplace : overview, dynamics, changing ERP market	20%
	Indian ERP Scenario. Functional modules of ERP software	
	Integration of ERP, SCM and CRM	
V	ERP package selection	20%
	ERP Implementation basics, ERP Implementation Life Cycle	

Basic Text & Reference Books :-		
1.	Alexis Leon: Enterprise Resource Planning, Tata McGraw-Hill, New Delhi 1st and 2nd editions.	
2.	Internet based resource.	

Paper Code: CECS207	Total Credit: 4
Title of Paper: MIS and ERP	Total Marks: 70
	Time: 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
П	Q.2(A) Short / Medium Questions (With Internal Option)	06	
	Q.2(B) Short / Medium Questions (With Internal Option)	08	14
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	
	Q.3(A) Short / Medium Questions (With Internal Option)	08	14
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	

Paper Code: CECS208	Total Credit: 4
Title of Paper: Data Communication and Computer Network	Total Marks :
	70
	Time: 3 Hrs

Unit	Description	Weighting
I	Introduction- The telephone system, Standards organizations,	20%
	History and Applications of data communications;	
	Fundamentals of data communications- Signal representation,	
	digital and analog signals, modems, data codes, Unicode,	
	telecommunications and voice communications.	
II	Conducted media-Twisted pair, coaxial and fiber-optic cable,	20%
	Radiated media- broadcast radio, microwave, cellular radio, SS	
	radio, Media selection- cost, speed, errors and security,	
	Computers and terminals, Network configurations, Terminal	
	interfaces;	
	Multiplexers- FDM, TDM, STDM, WDM, FDMA, TDMA,	
	CDMA, multiplexer configurations, Concentrators, Front-end	
	processors, Controllers, Protocol converters, Ancillary	
	equipment.	
III	Analog modulation- AM, FM, PM, QAM, Digital modulation-	20%
	digital to analog, analog to digital and digital to digital	
	modulation, Transmission directions-simplex, half-duplex, full-	
	duplex, Modes- serial, parallel, Synchronization- asynchronous,	
	synchronous, Errors- detection, correction, prevention, Data	
	Transmission- ISDN, DSL, LMDS	
	Protocols –OSI, Wide Area Network protocols, Internet	
	protocols, Local Area Network protocols	
IV	Switched circuits- DEMARC, LEC, VPN, ISDN, Dedicated	20%
	circuits- voice grade, wideband, T-carrier, DSL, SONET, Fast	
	packet services- X.25, Frame relay, ATM, SMDS, AIN, MPLS.	
V	Physical security, Software security, Digital signatures, Security	20%
	issues.	
	Network management- objectives, meeting the objectives,	
	Management of wireless networks, Network monitoring tools.	

Basic Text & Reference Books :-		
1.	Business Data Communications: Shelly / Cashman / Serwatka (Thomson Publishers)	
2.	Data Communication and Networking : Dr. M. Jain, Satish Jain (BPB)	
3.	Data Communication and Computer Networks : Brijendra Singh (PHI)	

Paper Code: CECS208	Total Credit : 4
Title of Paper: Data Communication and Computer Network	Total Marks: 70
	Time: 3 Hrs

Unit	Description		Total Marks
I	Q.1(A) Short / Medium Questions (With Internal Option)	06	14
	Q.1(B) Short / Medium Questions (With Internal Option)	08	
II	Q.2(A) Short / Medium Questions (With Internal Option)	06	
	Q.2(B) Short / Medium Questions (With Internal Option)	08	14
III	Q.3(A) Short / Medium Questions (With Internal Option)	06	
	Q.3(A) Short / Medium Questions (With Internal Option)	08	14
IV	Q.4(A) Short / Medium Questions (With Internal Option)	06	14
	Q.4(B) Short / Medium Questions (With Internal Option)	08	
V	Q.5(A) Short / Medium Questions (With Internal Option)	06	14
	Q.5(B) Short / Medium Questions (With Internal Option)	08	