Bhavan's Vivekananda College

Accredited with 'A' Grade by NAAC
Department of Computer Science
Academic Organizer for 2017 - 2018
M.Sc(CS) I SEMESTER
ADVANCED JAVA PROGRAMMING

Unit	Sub Unit	Topic	Periods per subunit	Total periods
I	a)	Event Handling: The Delegation Event Model, Events, Event Classes, Event Listener Interfaces, Using the Delegation Event Model, Adaptor Classes.	3	15
	b)	AWT: Windows Fundamentals, Working with Frame Windows,Control Fundamentals, Labels, Buttons, Checkbox, Radio Button(CheckboxGroup), TextField, Understanding Layout Manager(FlowLayout, GridLayout, BorderLayout, CardLayout).	4	
	c)	Swing: Introduction, Swing Features, Components and Containers, JLabel, JTextField, JButton, JToggleButton, JCheckBox, JRadioButton,	4	
	d)	JTabbedPane, JScrollPane, JList, JComboBox, JTree, JTable, JMenuBar, JMenu, JMenuItem, JRadioButtonMenuItem, JCheckBoxMenuItem, JPopupMenu, JToolBar.	4	
II	a)	JDBC: Design of JDBC Configuration, Executing SQL statement, Query Execution, Scrollable and Updatable result sets, row sets, metadata, Transaction.	6	15
	b)	Servlets: Need for Dynamic Content, Java Servlet Technology, Servlet API, servletConfig interface, servletRequest and servletResponse Interfaces, Genericservlet Class.	4	
	c)	ServletInputStream–ServletOutputStream Classes, requestDispatcher Interface, HttpServlet Class, HttpServletRequest and HttpServletResponse Interfaces, HttpSession Interface, Servlet Lifecycle.	5	
	a)	JSP: Introduction, Disadvantages, JSP Vs Servlets, Lifecycle of JSP, Comments, JSP documents, JSP elements, Action elements, implicit objects, Scope, Character Quoting Conventions	6	

III	b)	Java server Faces: Need of MVC, what is JSF?, components of JSF, JSF as an application, JSF lifecycle, JSF configuration, JSF web applications(login form, JSF pages).	4	15
	c)	EJB: Enterprise Bean Architecture, Benefits of Enterprise Bean, Types of Beans, Accessing Beans, Packaging Beans, Creating Web Applications, Creating Enterprise Bean, Creating Web Client, Creating JSP File, Building and Running Web Application.	5	
IV	a)	HIBERNATIVE: Introduction, Writing the application, application development approach, creating database and tables in MySQL,	6	15
	b)	creating a web application, Adding the required library files, creating a java bean class, creating hibernate configuration and mapping file, adding a mapping resource, creating JSPs.	5	
	c)	STRUTS: Introduction, Struts framework core components.	4	

Department of Computer Science
Academic Organizer 2017-2018
M.Sc I Semester Operating Systems

Unit	Sub Unit	Details	Total
I	a)	**Unit-I** Computer-System Architecture, Operating-System Structure, Operating-System Operations, Process Management, Memory Management, Storage Management, Protection- Security, Kernel Data Structures, Computing Environments, Open-Source Operating Systems.	5
	b)	**Operating-System Structures**: Operating-System Services, User Interface for Operating-System, System Calls, Types of System Calls, Operating-System Design and Implementation, Operating-System Structure, Operating-System Debugging.	5
	c)	**Process Management**: Process Concept, Process Scheduling, Operations on Processes, Inter processCommunication, Examples of IPC Systems, Communication in Client–Server Systems	5
II	d)	**Unit – II Threads**: Overview, Multithreading Models, Threading Issues. **Process Synchronization**: Concept, Critical-Section Problem, Peterson's Solution, Synchronization, ClassicProblems of Synchronization, Semaphores, Monitors.	5
	a)	**CPU Scheduling:** Concepts, Scheduling Criteria, Scheduling Algorithms, Thread Scheduling, Real-Time CPUScheduling, Algorithm Evaluation.	5
	b)	**Deadlocks:** System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.	5
III	c)	**Unit – III** **Memory Management:** Main Memory - Swapping, Contiguous Memory Allocation, Segmentation, Paging, Structure of the Page Table. Virtual Memory: Demand Paging, Page Replacement, Allocation of Frames, Thrashing, Memory-Mapped Files.	5
	d)	**Mass-Storage Structure:** Overview, Disk Structure, Disk Scheduling, Disk Management, Swap-Space Management, RAID Structure, Stable-Storage Implementation.	5
	e)	**File SystemInterface**: File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, Protection	5
IV	f)	**Unit – IV File- System Implementation:** Directory Implementation, Allocation Methods, Free-Space Management, Recovery, Network File System.	5
	g)	**Protection** : Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix, Access Control, Revocation of Access Rights.	5
	h)	**Security:**Security Problem, Program Threats, System andNetwork Threats, Cryptography as a Security Tool, User Authentication, Implementing Security Defenses, Firewalling to Protect Systems and Networks, Computer-Security Classifications. Case Study: Windows 7 andLinux System.	5
Total			60

Department of Computer Science
M.Sc Iyear- I Semester, Software Engineering
Lesson Plan 2016-2017

UNIT	Details	Periods Per Sub Unit	Total
I	The Nature of Software, Software Process, Software Engineering Practice	4	15
	A Generic Process Model, Defining a Framework Activity,	3	
	Process Assessment and Improvement, Prescriptive Process Models,	3	
	Unified Process, Personal and Team Process Models. Defining Agility,	3	
	Agile Process, Extreme Programming.	2	
II	**Requirements:** Requirements Engineering, Establishing the Groundwork,	1	15
	Eliciting Requirements, Developing Use Cases, Building the Requirements Model	2	
	Requirements Analysis, UML Models That Supplement the Use Case,	2	
	Identifying Analysis Classes, Specifying Attributes, Defining Operations	2	
	Class- Responsibility-Collaborator Modeling, Associations and Dependencies	2	
	Analysis Packages. Design Concepts: Design within the Context of SE	2	
	Design Process, Design Concepts, Design Model	1	
	Software Architecture, Architectural Styles, Architectural Design	1	
	Component, Designing Class-Based Components, Conducting Component-Level Design	1	
	Component-Based Development, User Interface Design Rules.	1	
III	**Quality Management:** Quality, Software Quality, Software Quality Dilemma	1	15
	Achieving Software Quality, Defect Amplification and Removal, Reviews,	2	
	Informal Reviews, Formal Technical Reviews, Elements of Software Quality Assurance	3	
	SQA Tasks, Goals, and Metrics, Software Reliability,	2	
	A Strategic Approach to Software Testing, Validation Testing	2	
	System Testing, Debugging, Software Testing Fundamentals,	2	
	White-Box Testing, Basis Path Testing, Control Structure Testing	2	
	Black-Box Testing, Object-Oriented Testing Strategies& Methods.	1	
IV	Software Configuration Management, SCM Process, Product Metrics	1	15
	Requirements Model,, Design Model, Source Code, Testing and Maintenance.	2	
	Managing Software Projects: The Project Management Spectrum, W5HH Principle,	2	
	Metrics in the Process and Project Domains, Software Measurement	2	
	Metrics for Software Quality, Integrating Metrics within the Software Process	2	
	Software Project Estimation, Decomposition Techniques, Project Scheduling	2	
	basics, scheduling, Software Risks, Risk Mitigation, Monitoring, and Management,	2	
	Software Maintenance, Software Reengineering, Reverse Engineering, Forward Engineering.	2	
	TOTAL NO OF CLASSES		**60**

DESIGN and ANALYSIS OF ALGORITHMS

UNIT	SUB TOPIC	TOPIC	NO. OF HOURS	TOTAL HOURS
I	1	Algorithm, Fundamentals of Algorithmic Problem Solving, Important Problem Types.	4	15
	2	The Analysis Framework, Asymptotic Notations and Basic EfficiencyClasses, Mathematical Analysis of Non-recursive & Recursive Algorithms.	3	
	3	**Brute Force Search:** Selection Sort,Bubble Sort, Sequential Search, Brute-Force String Matching,	4	
	4	Exhaustive Search, Depth-First Search, Breadth-First Search.	4	
II	1	**Decrease–&–Conquer:** Insertion Sort, Topological Sorting, Binary Search, Interpolation Search	4	19
	2	**Divide-and-Conquer:** Merge Sort, Quick Sort, Multiplication of Large Integers, Strassen's Matrix Multiplication	5	
	3	Transform-and-Conquer: Presorting, Balanced Search Trees, Heaps and Heap Sort, Problem Reduction, Space and Time Trade-Offs, Hashing, B-Trees	5	
	4	Space and Time Trade-Offs, Hashing, B-Trees	5	
III	1	**Dynamic Programming:** Knapsack Problem	3	11
	2	Optimal Binary Search Trees	3	
	3	Warshall's and Floyd's Algorithms	5	
IV	1	**Greedy Technique:** Prim's Algorithm, Kruskal's Algorithm, Dijkstra's Algorithm, Huffman Trees and Codes	5	15
	2	**Iterative Improvement:** Simplex Method, Maximum-Flow Problem	3	
	3	**Limitations of Algorithm Power:** Lower-Bound Arguments, Decision Trees, P, NP, and NP-Complete Problems.Backtracking: n-Queens Problem, Hamiltonian Circuit Problem, Subset-Sum Problem	3	
	4	.**Branch-and-Bound:**Assignment Problem, Knapsack Problem, Traveling Salesman Problem, Approximation Algorithms for theKnapsack Problem	4	
		TOTAL CLASSES		60

.NET TECHNOLOGY

UNIT	SUB TOPIC	TOPIC	NO. OF HOURS
I	1	Introduction to .NET framework, .NET objects, exploring new features of visual studio 2010, exploring the visual studio 2010 IDE.	5
	2	. Introducing C# 2010 – creating simple C# application, data types, variables and constants, expressions and operators.	5
	3	. Control and looping statements. Arrays- single, multi dimensional and Jagged arrays.	5
II	1	Windows applications – creating windows forms, displaying messages, creating MDI forms.	4
	2	Windows form controls-labels, text box, list box, rich text box, list box, check box, combo box controls, buttons.	8
	3	Handling XML – problem, solution, example, XML schemas and serialization.	3
III	1	.NET and SQL Server – data accessing with ADO.NET	4
	2	connection, data access, data set, data reader. Creating applications using ADO.NET, stored problems.	8
	3	. Introduction to web services.	3
IV	1	ASP.NET feature- core services, IIS-Chang home directory, set a default document and web site operations (Start, Stop and Pause).	6
	2	Creating web controls- Server & client web form controls.	4
	3	Introducing new features of ASP.NET – web forms, dynamic data, chat control, AJAX functionality, MVC based applications.	5
		TOTAL CLASSES	

Bhavan's Vivekananda College

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Department of Computer Science
Academic Organizer for 2017 - 2018
M.Sc(CS) II SEMESTER
PROGRAMMING USING PYTHON

Unit	Sub Unit	Topic	Periods per subunit	Total periods
I	a)	Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input,Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from theKeyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output.	5	15
	b)	Decision Structures and Boolean Logic: if, if-else, if-elif-else Statements, Nested Decision Structures, ComparingStrings, Logical Operators, Boolean Variables.	5	
	c)	Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops,Nested Loops.	5	
II	a)	Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions, LocalVariables, Passing Arguments to Functions, Global Variables and Global Constants	6	15
	b)	Value-Returning Functions-Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, StoringFunctions in Modules.	4	
	c)	**File and Exceptions:** Introduction to File Input and Output, Using Loops to Process Files, Processing Records,**Exceptions.**	5	
III	a)	**Lists and Tuples:** Sequences, Introduction to Lists, List slicing, Finding Items in Lists with the in Operator, ListMethods and Useful Built-in Functions, Copying Lists, Processing Lists, Two-Dimensional Lists, Tuples.	6	15
	b)	**Strings:** Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings.	4	
	c)	**Dictionaries and Sets:** Dictionaries, Sets, Serializing Objects.**Recursion:** Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms.	5	

III	b)	Java server Faces: Need of MVC, what is JSF?, components of JSF, JSF as an application, JSF lifecycle, JSF configuration, JSF web applications(login form, JSF pages).	4	15
	c)	EJB: Enterprise Bean Architecture, Benefits of Enterprise Bean, Types of Beans, Accessing Beans, Packaging Beans, Creating Web Applications, Creating Enterprise Bean, Creating Web Client, Creating JSP File, Building and Running Web Application.	5	
IV	a)	HIBERNATIVE: Introduction, Writing the application, application development approach, creating database and tables in MySQL,	6	15
	b)	creating a web application, Adding the required library files, creating a java bean class, creating hibernate configuration and mapping file, adding a mapping resource, creating JSPs.	5	
	c)	STRUTS: Introduction, Struts framework core components.	4	

Bhavan's Vivekananda College

Department of Computer Science
Academic Organizer 2017-2018

m.Sc.(Computer Science) III SEMESTER(CBCS)

CS304(A): Object Oriented System Development

Month	Details	Total Classes alloted	Unit wise Total	Hod Signature
June 2017	**Unit-I:** An Overview of Object Oriented System Development Object Basics, Object Oriented System Development Life Cycle Object Oriented Methodologies, Importance of Modeling. Object Oriented Modeling,	8	15	
	Object Oriented Modeling, An Overview of the UML, Software Development Life Cycle of UML Building Blocks of the UML, Rules of the UML, UML Architecture.	7		
July 2017	**Unit-II: Structural modeling:** Classes, Relationships, Common Mechanisms, Diagrams, Class Diagrams.	7	15	
	Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types, Roles, Packages, Instances, Object Diagrams	8		
Aug 2017	**Unit-III: Behavioral modeling:** Interactions, Use cases, Use case Diagrams, Interaction Diagrams, Activity Diagrams.	8	15	
	Advanced Behavioral Modeling: Events and signals, State Machines, Processes and Threads, Time and Space, State Chart Diagrams.	7		
Sept 2017	**Unit-IV: Advanced Modeling:** Components, Deployment, Collaborations	5	15	
	Patterns and Frame works, Component diagrams,	5		
	Deployment Diagrams, Systems and Models.	5		
Total Classes		**60**	**60**	

Department of Computer Science
Academic Organizer 2017-2018
M.Sc -III Semester, Comuter Organization

slno	Unit	Chapters	TOPICS	Pageno	No of Hours
1	Unit-I	Chapter-1	**Introduction To Compiling:**-Compilers –Analysis of the source program –Phases of a compiler –Cousins of the Compiler –Grouping of Phases –Compiler construction tools	4	15
		Chapter-2	**Simple One-Pass Compiler**: Overview, syntax definition, syntax directed translation, parsing, a translator for simple expressions		
		Chapter-3	**Lexical Analysis** –The Role of Lexical Analyzer –Input Buffering –Specification of Tokens, Recognition of tokens, a language for specifying lexical analyzers.	7	
2	Unit-II	Chapter-4	**Syntax Analysis** -Role of the parser –Top Down parsing (Recursive Descent Parsing ,Predictive Parsers) –Bottom-up parsing –Operator Precedent Parsing–LR Parsers (SLR Parser tables, constructing Canonical LR Parser, LALR Parser), introduction to parser generators	7	15
		Chapter-5	**Syntax –Directed Translation**: Syntax Directed definition, construction of syntax trees.	8	
3	Unit-III	Chapter-7	**Run Time Environments:** —Source Language issues –Storage Organization –Storage Allocation strategies –Access to nonlocal names –Parameter Passing,	10	15
			Symbol Tables (Symbol table entries, Data structures to symbol tables, representing scope information).	5	
4	unit-1V	Chapter-11	**Intermediate Code Generation:** -Intermediate languages –Declarations –Assignment Statements–Boolean Expressions –Case Statements –Back patching	9	15
		Chapter-12	**Code Generation:** -Issues in the design of code generator –The target machine –Basic Blocks and Flow Graphs –Next-use Information –A simple code generator	6	
			TOTAL	60	60

Department of Computer Science
Academic Organizer 2017-2018
M.Sc IIyear I Sem, Network Security
Year-wise Lesson Plan

UNIT	Details	Periods Per Sub Unit	Total
I	Conventional encryption, security attacks, security, model for network security	5	15
	conventional encryption model, encryption techniques, DES, triple DES	7	
	key distribution, random number generation.	3	
II	Public-key cryptology, principles of public - key cryptosystems	5	15
	RSA algorithm, key management	6	
	distribution of public keys, public key - distribution of s	4	
III	Authentication and digital systems authenticate requirements - functions cryptographic checksum, hash function, digital signatures	6	15
	authentication protocols, kerboros, x-509 directory, authentication services	4	
	Diffie-Hellman key exchange, digital signature standards.	5	
IV	Cryptographic algorithms, the MD 5 message digest algorithm, secure has algorithm, international data encryption algorithm	7	15
	LUC public key encryption - Electronic mail and management security	5	
	pretty good privacy (PGP), privacy enhanced mail	3	
	TOTAL NO OF CLASSES		60

Bhavan's Vivekananda College
Department of Computer Science
M.Sc.(CS) III Semester
CS 301 : C# PROGRAMMING
ACADEMIC ORGANIZER 2017 – 18

UNIT NO.	TOPIC	PERIODS TOPIC WISE	TOTAL PERIODS
I	- The C# Language and the .NET Platform, Visual Studio IDE, Alternatives to Visual Studio, Decompiling Code , C# in Linux, iOS and Android, Other .NET Languages.	5	15
	Primitive types and variables – Data types, variables, value and reference type, literals. Operators, type casting and conversion, expressions. Console Input and Output statements.	4	
	Conditional and looping statements – if, if-else, switch statements. For, do-while, for each loop and nested loops.	6	
II	Arrays – reading array elements from console, memory allocation to array elements, multidimensional arrays, array of arrays.	6	15
	Methods – How to declare, implement and invoke methods. Implementation of user defined methods. Parameters and return value from methods. Best practices when using methods.	5	
	Recursion – direct or indirect recursion, creating recursive methods, why to use recursions. Exception handling, string and text processing.	4	
III	Defining Classes – custom classes, classes and objects, organizing classes in files and namespaces, class declaration, members visibility, usage of reserved word 'this', constructors, static class and members, structures, nested	5	15

	classes, generics.		
	Text files – Streams, read and write operations with text files, input/output exception handling. Windows forms – creating windows forms, for object property settings, creating Multiform	6	
	Windows Applications forms, displaying messages. Windows form controls-labels, text box, list box, rich text box, list box, check box, combo box controls, buttons. (I-Chap – 14, 15, II-Chap -4,5)	4	
IV	ADO.NET – connection, data access, data set, data reader.	5	15
	ASP.NET- Introducing new features, describing the ASP.NET life cycle.	5	
	Web forms – standard controls. Working with database controls.	5	

Bhavan's Vivekananda College
Department of Computer Science
M.Sc.(CS) IV Semester
CS 402 : CLOUD COMPUTING
ACADEMIC ORGANIZER 2017 – 18

UNIT NO.	TOPIC	PERIODS TOPIC WISE	TOTAL PERIODS
I	**Foundations:** Introduction to Cloud Computing, Migrating into a Cloud.	5	15
	Enriching the 'Integration as a Service'.	4	
	Paradigm for the Cloud Era, the Enterprise Cloud Computing Paradigm.	6	
II	**Infrastructure as a Service (IAAS) & Platform and Software as a Service (PAAS / SAAS)-**Virtual machines provisioning and Migration services, On the Management of Virtual machines for Cloud Infrastructures.	6	15
	Enhancing Cloud Computing Environments using a cluster as a Service, Secure Distributed Data Storage in Cloud Computing.	4	
	Aneka, Comet Cloud, T-Systems, Workflow Engine for Clouds, Understanding Scientific Applications for Cloud Environments	5	
III	**Monitoring, Management and Applications**: Architecture for Federated Cloud Computing.	4	15
	SLA Management in Cloud Computing, Performance Prediction for HP ConClouds, Best Practices in Architecting Cloud Applications in the AWS	6	
	Cloud, Building Content Delivery networks using Clouds, Resource Cloud Mashups.	5	
IV	**Governance and Case Studies**: Organizational Readiness and Change management in the Cloud Age.	5	15

	Data Security in the Cloud, Legal Issues in Cloud computing,	6	
	Achieving Production Readiness for Cloud Services.	4	

Department of Computer Science
Academic Organizer 2017-2018
M.Sc IV Semester Robotics & Artificial Intelligence

Unit	Sub Unit	Details	Total
I	a)	Definition and Foundation of AI. The State of Art. The nature of Environments,	3
	b)	The Structure of Agents; Solving Problems by Searching-Uninformed Search Strategies: Breadth First Search, Depth-First Search.	4
	c)	Informed Search Strategies (Heuristic Search): Greedy Best First Search, Memory Bounded Heuristic Search,	5
	d)	Hill Climbing Search, ADVERSIAL SEARCH: Optimal Decisions in games, Alpha-Beta Pruning.	3
II	a)	Learning: Forms of Learning, Supervised Learning, Learning Decision Trees, Artificial Neural Networks, Ensemble Learning, Practical Machine Learning.	4
	b)	Natural Language Processing: Language Models, Information Retrieval, Information Extraction.	3
	c)	Natural Language for Communication: Phrase structure grammars, Syntactic Analysis, Speech Recognition.	3
	d)	Robotics: Introduction, Robot Hardware, Planning to move, Planning uncertain movements, Application Domains	5
		Total No. of Teaching Hours	30

Department of Computer Science
Academic Organizer 2017-2018
M.Sc -IV Semester, Compiler Design

slno	Unit	Chapters	TOPICS	Pageno	No of Hours
1	Unit-I	Chapter-1	**Introduction To Compiling:**-Compilers –Analysis of the source program –Phases of a compiler –Cousins of the Compiler –Grouping of Phases –Compiler construction tools	4	15
		Chapter-2	**Simple One-Pass Compiler**: Overview, syntax definition, syntax directed translation, parsing, a translator for simple expressions		
		Chapter-3	**Lexical Analysis** –The Role of Lexical Analyzer –Input Buffering –Specification of Tokens, Recognition of tokens, a language for specifying lexical analyzers.	7	
2	Unit-II	Chapter-4	**Syntax Analysis** -Role of the parser –Top Down parsing (Recursive Descent Parsing ,Predictive Parsers) –Bottom-up parsing –Operator Precedent Parsing–LR Parsers (SLR Parser tables, constructing Canonical LR Parser, LALR Parser), introduction to parser generators	7	15
		Chapter-5	**Syntax –Directed Translation**: Syntax Directed definition, construction of syntax trees.	8	
3	Unit-III	Chapter-7	**Run Time Environments:** –Source Language issues –Storage Organization –Storage Allocation strategies –Access to nonlocal names –Parameter Passing,	10	15
			Symbol Tables (Symbol table entries, Data structures to symbol tables, representing scope information).	5	
4	unit-1V	Chapter-11	**Intermediate Code Generation: -** Intermediate languages –Declarations –Assignment Statements–Boolean Expressions –Case Statements –Back patching	9	15
		Chapter-12	**Code Generation:** -Issues in the design of code generator –The target machine –Basic Blocks and Flow Graphs –Next-use Information –A simple code generator	6	
			TOTAL	60	60

Bhavans Vivekananda College
Department of Computer Science
M.Sc (CS) IV SEMESTER
CS403(A): MOBILE COMPUTING
ACADEMIC ORGANIZER 2017 2018

Month	Unit No	Sub Unit	Details	Period Topic Wise	Total Periods
Nov, 2017	I	a	**Introduction to Mobile Computing**: Applications	1	15
		b	**Wireless Transmission**: Frequency for radio transmission	1	
			Signals, Antennas	2	
			Signal propagation	1	
			Multiplexing	2	
			Modulation	2	
			Spread Spectrum	1	
			Cellular Systems	1	
		C	**Medium Access Control**: Motivation for a specialized MAC	1	
			SDMA, FDMA	1	
			TDMA	1	
			CDMA	1	
			Comparisons		
Dec, 2017	II	a	**Wireless LAN**: Infrared vs. Radio transmission	3	15
			Infrastructure and Ad hoc Networks	2	
			IEEE 802.11	4	
		b	**Mobile Network Layer**: Mobile IP	2	
			Dynamic host configuration protocol	4	
			Ad hoc networks		
Jan, 2018	III	a	**Mobile Transport Layer**: Indirect TCP, Snooping TCP	1	15
			Mobile TCP, Fast retransmit / fast recovery	2	
			Transmission/time-out freezing, Selective re-transmission	2	
			Transaction oriented TCP	2	
		b	**Wireless Application Protocol**: WAP Architecture	2	
			Wireless Datagram Protocol	2	
			Wireless Transport Layer Security	2	
			Wireless Transaction Protocol	2	
Feb, 2018	IV	a	**Wireless Application Protocol**: Wireless Session Protocol	2	15
			Wireless Application Environment	3	
			Wireless Markup Language, (WML) script, Events	3	
			Wireless Telephony Application	2	
			Push Architecture, Push / Pull Services	3	
			WAP 2.0	2	
Total					60