



**OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING**

FOR

M. Sc. (IT)

(SEMESTER SYSTEM)

SECOND YEAR (Semester III & IV)

(2021-22 Session)

(As per RUSA Guidelines)



**PUNJABI UNIVERSITY,
PATIALA 147002**

[Handwritten signatures and initials]



SYLLABI, OULINES OF PAPERS AND TESTS

**M.Sc. (IT) Semester III
(2021-22 Session)**

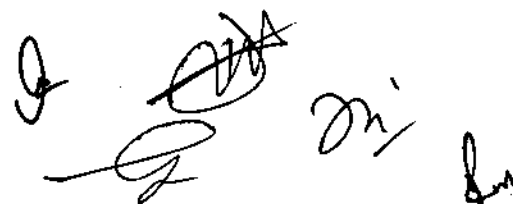
Code No.	Title of the Paper	Lecture Per week	Univ. Exam. Marks	Int. Ass. Marks	Time Total Allowed
MS-211	Web Technology	5	70	30	3 Hrs
MS-212	Java Programming	5	70	30	3 Hrs
MS-213	Software Engineering	5	70	30	3 Hrs
MS-214	Computer Networks	5	70	30	3 Hrs
MS-215	Programming Lab-IV (Web Technology)	8	70	30	3 Hrs
MS-216	Programming Lab-V (Java Programming)	8	70	30	3 Hrs

**M.Sc. (IT) Semester IV
(2021-22 Session)**

Code No.	Semester System-IV	Lecture Per week	Univ. Exam. Marks	Int. Ass. Marks	Time Total Allowed
MS-221	Computer Graphics	5	70	30	3 Hrs
MS-222	Linux Administration	5	70	30	3 Hrs
MS-223	Research Methodology	5	70	30	3 Hrs
MS-224	Artificial Intelligence	5	70	30	3 Hrs
MS-225	Programming Lab-VI (Computer Graphics)	8	70	30	3 Hrs
MS-226	Programming Lab-VII (LINUX Administration)	8	70	30	3 Hrs

CONTINUOUS ASSESSMENT (THEORY PAPERS)

1.	Two tests will be conducted during the Semester. Both the tests will be considered for assessment.	:	60% of the marks allotted for Continuous Assessment
2.	Assessment/Quizes	:	20% of the marks allotted for Continuous Assessment
3.	Attendance	:	10% of the marks allotted for Continuous Assessment.
4.	Class Participation and behavior	:	10% of the marks allotted for Continuous Assessment.



MS-211 :Web Technology**Maximum Marks: 70**
Minimum Pass Marks: 35%**Maximum Time: 3 Hrs.**
Lectures to be delivered: 40-45**A) INSTRUCTIONS FOR THE PAPER SETTER**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introductory:Internet Basics: Networks, Protocols, TCP/IP, Internet Addresses, Ports, Sockets, Name Resolution, Firewalls, Protocol Tunneling, Proxy Servers, Internet Standards, governing the web HTTP, MIME, Inside URLs, Web applications, Overview of clients/servers web communication, comparison of web servers, Common Gateway Interface CGI.

Web Page Designing:Introduction to markup languages;HTML: list, table, images, frames, forms, pages style sheets CSS;XML: DTD, XML Namespaces, XML schemes, Presenting XML with CSS and XSLT, XML-DOM, What is XHTML?

SECTION B

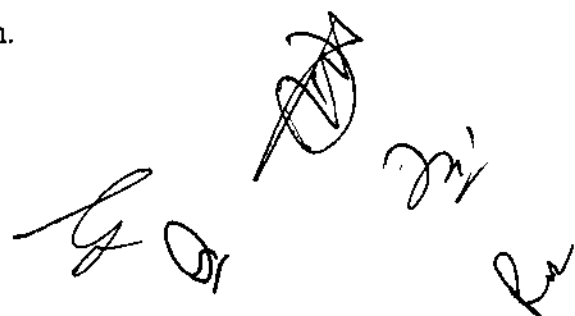
Client Side Scripting:Java script: Introduction, documents, forms, statements, functions, objects; Event and event handling; Browsers and the DOM, JQuery: Syntax, Selectors, Events and AJAX methods.

Server Side Programming: PHP: Introduction, requirements, PHP syntax, data type, variables, strings, operators, if-else, control structure, switch, array, function, file handling, form, sending email, file upload, session/state management, error and exception, PHP Database for dynamic Web pages.

Introduction to Servlets: Servlet Basic Servlet Structure, Servlet Lifecycle, Servlet APIs. Writing thread safe Servlets. Setting Cookies and Session Management with Servlet API.

Reference Books :

1. Jeffrey C Jackson, "Web Technology – A computer Science perspective", Person Education, 2007.
2. Chris Bates, "Web Programming – Building Internet Applications", Wiley India, 2006.
3. Xavier, C, "Web Technology and Design", New Age International
4. Ivan Bayross, "HTML, DHTML, Java Script, Perl & CGI", BPB Publication.
5. Ramesh Bangia, "Internet and Web Design", New Age International
6. Bhave, "Programming with Java", Pearson Education
7. Ullman, "PHP for the Web: Visual QuickStart Guide", Pearson Education
8. Deitel, "Java for programmers", Pearson Education
9. Dustin R. Callaway, "Inside Servlets" Pearson Education.

Handwritten signatures and initials in black ink, including a large stylized signature, a circular mark, and several smaller initials.

MS-212 :Java Programming**Maximum Marks: 70****Maximum Time: 3 Hrs.****Minimum Pass Marks: 35%****Lectures to be delivered: 40-45****A) INSTRUCTIONS FOR THE PAPER SETTER**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to Java, Why java is important to the Internet, Object Oriented Programming, Data types, Variables, Arrays, the Simple types, Floating Point Types, Operators, Arithmetic Operators. The Bit wise operators, Relational Operator's, Boolean, Logical Operators, Control Statements.

Introducing Classes : Class fundamentals, declaring objects, Assigning object Reference, Variables, Introducing Methods, Constructors, this keyword, Garbage collection, Overloading Using Objects and parameters, Argument Passing, Returning Objects, Recursion, Access Control, Static, Nested & Inner Classes. Exploring String class using command line Arguments. Inheritance.

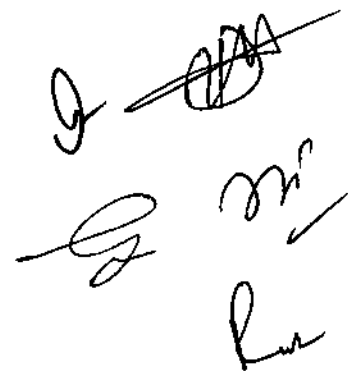
SECTION B

Packages : Defining a package, CLASSPATH, Access protection, Importing Packages, Defining an interface, Implementing Interface. Exception handling fundamentals, Exception types, using try & catch, throw, throws, Java's Built in Exceptions, Creating your own Exception subclasses.

Threading, Multithreading, Applets, Event handling, Introduction of AWT.

ReferenceBooks :

1. Patrick Naughton and Herbert Schildt, "The Complete Reference Java 2", Tata McGraw Hill, 1999.
2. Lemay, L. : Teach yourself Java in 21 days, Tech.
3. Griffith : 1001 Java Programming Tips.
4. Sulalman : Java Programmers Library.



MS-213 :Software Engineering

Maximum Marks: 70
Minimum Pass Marks: 35%

Maximum Time: 3 Hrs.
Lectures to be delivered: 40-45

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Software Engineering : History, Definition, Goal; The role of the Software Engineer, The Software Life Cycle, The relationship of Software Engineering to other areas of Computer Science, Classification of Software Qualities, Representative Qualities, Software process models: Waterfall model, prototyping, spiral; Tools and techniques for process modeling, Management of software engineering management functions, project planning and organization.

Requirement Analysis: The requirement process, types of requirements, Characteristics and components of SRS, Data flow Diagrams, Data Dictionary, UML diagrams for specifying behaviors ,metrics, verification of SRS.

Design and Software architecture: The Software design activity and its objectives, Abstraction, Modularity, Coupling-Cohesion criteria, Object-Oriented Design: generalization and specialization, associations and aggregations.

SECTION B

Coding: Programming standards and procedures, programming guidelines, documentation, and Code verification techniques.

Verification and validation: Approaches to verification, testing goals, principles, Equivalence class partitioning, Boundary value analysis, mutation testing, graph based testing, cyclomatic complexity, test planning ,automated testing tools, features of Object-Oriented testing.

Software maintenance: The nature of maintenance, maintenance problems, maintenance techniques and tools.

Software re-engineering, reverse engineering, forward engineering: forward Engineering for Object-oriented and client/server architecture, Building blocks for CASE, CASE tools and applications.

Reference Books :

1. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, " Fundamentals of Software Engineering", 2nd edition Pearson Education. 2003.
2. Shari Lawrence Pfleeger, " Software Engineering : Theory and Practice", 2nd edition, Pearson Education, 2003.
3. P.Jalota, "An Integrated Approach to SoftwareEngineering", Narosa Publications.
4. Roger.S.Pressman," SoftwareEngineering-A practitioner's Approach", 3rd edition,McGraw-Hill.

MS-214 :Computer Networks

Maximum Marks: 70

Minimum Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 40-45

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Computer networks: uses of computer networks, Goals and applications of networks, computer network structure and architecture, reference models: OSI model, TCP/IP model, Comparison of TCP/IP and OSI models, Introduction to Novell Netware, and ARPANET.

Medium Access Sublayer : Static and dynamic channel allocation for LAN and MAN ALOHA Protocols, **LAN Protocols :** CSMA, CSMA/CD, Collision Free protocol, BRAP, MLMA, Binary countdown, Limited contention protocol, Urn Protocol, Adaptive tree walk protocol.

Networking and Internetworking devices: Repeater, bridges, routers, gateways, switches.

SECTION B

High speed LAN: FDDI, Fast Ethernet, HIPPI, Fiber channel.

LAN IEEE 802.x standards.

Routing: Static vs. Dynamic Routing, various Routing Algorithms.

Congestion Control: Causes of Congestion, Various Congestion Control Strategies and Algorithms

Mobile telephone, mobile telephone switching office.

Internet protocols: Principles of Internetworking, connectionless internetworking, Internet protocols, IPv6.

Network Security: Security requirements and attacks, encryption Public key encryption and digital Signatures. distributed applications: SNMP, SMTP, HTTP.

ReferenceBooks :

1. A.S. Tannenbaum, "Computer Networks", 3rd Edition, Prentice Hall, 1999.
2. Data Communications & Networking by Forouzan, Tata McGraw Hills.
3. D.E. Corner, " Computer Networks and Internet", 2nd Edition, Addison Wesley Publication, 2000.
4. D.E. Corner and D.L. Stevens, " Inter-networking with TCP-IP: Design, Implementation and Internals", Vol. II, Prentice Hall, 1990.
5. D. Bertsekas and R.Gallagar, "Data Networks", 2nd Edition, Prentice-Hall, 1992.
6. Stevens W.R., " UNIX Network Programming," Prentice Hall, 1990.

MS-215 : Programming Lab-IV (Web Technology)

Maximum Marks: 100*

Max. Time: 3 Hrs.

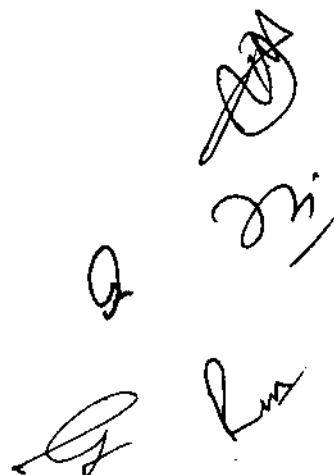
Minimum Pass Marks: 35%

Practical sessions to be conducted:60-70

This laboratory course will mainly comprise of exercise and a minor project based on subject MS-211 Web Technology.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination:70

Handwritten signatures and initials in black ink, including a large stylized signature at the top, a smaller signature below it, and two sets of initials (one resembling 'G' and another 'Lm') at the bottom.

MS-216 Programming Lab-V (Java Programming)

Maximum Marks: 100*

Max. Time: 3 Hrs.


Minimum Pass Marks: 35%

Practical sessions to be conducted: 60-70

This laboratory course will mainly comprise of exercise and a minor project based on subject MS-212 Java Programming.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination:70


D. M.
R. S.

MS 221 :Computer Graphics

Maximum Marks: 70
Minimum Pass Marks: 35%

Maximum Time: 3 Hrs.
Lectures to be delivered: 40-45

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to computer Graphics systems, components of interactive computer graphics system, Application areas.

Video Display Devices: Refresh cathode -ray tube, raster scan displays, random scan displays, colour CRT-monitors, direct view storage tube, flat-panel displays, 3-D viewing devices, virtual reality, raster scan systems, random scan systems, graphics monitors and workstations.

Scan conversion algorithms for line, circle and ellipse, Bresenham's algorithms, area filling techniques, character generation.

2-dimensional Graphics: Cartesian and Homogeneous co-ordinate system, Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations, affine transformation, Two dimensional viewing transformation and clipping (line, polygon and text).

SECTION B

3-dimensional Graphics: Geometric transformations (translation, Scaling, Rotation, Reflection, Shearing), Composite transformations, Mathematics of Projections (parallel & perspective). 3-D viewing transformations and clipping.

Hidden line and surface elimination algorithms, z-buffer, scan-line, sub-division, Painter's algorithm.

Illumination Models: Diffuse reflection, Specular reflection, refracted light, texture surface patterns, Halftoning, Dithering.

Surface Rendering Methods: Constant Intensity method, Gouraud Shading, Phong Shading.

Reference Books :

1. D. Hearn and M.P. Baker, "Computer Graphics", PHI New Delhi; Second Edition, 1995.
2. J.D. Foley, A.V. Dam, S.K. Feiner, J.F. Hughes, R.L Phillips, "Introduction to Computer Graphics", Addison-Wesley Publishing company, N.Y.; Second Edition, 1994.
3. R.A. Plastock and G. Kalley, "Computer Graphics", McGraw Hill, 1986.

MS-222 : LINUX Administration**Maximum Marks: 70****Minimum Pass Marks: 35%****Maximum Time: 3 Hrs.****Lectures to be delivered: 40-45****A) INSTRUCTIONS FOR THE PAPER SETTER**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction: Overview of Linux, Linux's History, Advantages of Linux, Minimum System Requirements;
Installing Linux: Choosing Text or Graphics Installation, Setting up your Hard Drive, Understanding the Swap Space, Creating the Linux File-system partition, Setting up the mouse, root password and Ethernet, Configuration X, Selecting packages to Install, Creating the Boot Disk. **Using LILO boot manager:** Installing LILO, LILO make-file, Updating LILO, Removing or Disabling LILO, Troubleshooting LILO. The Boot Process, Startup Scripts, Shutdown, Halt and reboot, Creating a New Login, Virtual Terminals, Running as root.

Basic Linux Commands : How Linux Commands Work, Command Options & Parameters, Input and Output Redirection, Mian pages, Wildcards : * and ?, Environment Variables, The process status Commands : ps, termination command : kill, the su command, the grep command.

Linux File System : Common types of files, filenames, Inodes, The root directory, How directories are named, Navigating the Linux file System : pwd command, Absolute and relative filenames; cd command, Creating and Deleting files : Cat, Creating Directories, Moving and Copying files, Moving Directories, Removing files and directories, Important directories in the Linux file System : / , /home, /bin, /usr, /usr/bin, /var/spool, /dev, /sbin, /etc.

File and Directory ownership, Groups, Changing group ownership, File Permissions, UMASK Setting, Changing File Permission, Changing directory permissions; Bash : What is Shell ? How the Shell gets Started, The most common Shells;

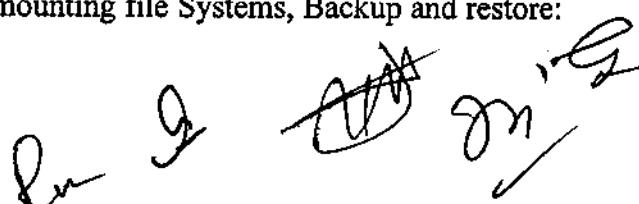
SECTION B

Shell Scripting: Creating and Executing Shell Programs, Using variables : Assigning a value to a variable, Accessing the value of a variable, Positional Parameters and other Built-In Shell Variables; Special Characters, Conditional Statements : if Statement , case Statement; Iteration Statements : for Statement, while Statement, until Statement, shift Command, select Statement, repeat Statement, Functions.

Editing and Typesetting : Text Editors vi, The vi Editor, Starting vi, vi modes, Inserting Text, Quitting vi, Moving the Cursor, Deleting Text, Copying and Moving Text, Searching and Replacing Text, Setting Preferences.

Configuring the X Window: Xfree86 Software Distribution, Choosing an X Server, Installing Xfree86 Manually, Installing Xfree86 using a Script, Path Environment Variable; Configuring Xfree86; The xconfig and XF86Config Files in Detail: Pathnames, Keyboard Setting, Mouse Definition, Monitor Model, Video Cards, The Xfree86 Server, Testing Xfree86 Configurations, The .xinitrc File.

Linux for System Administrators: System Administration Basics, The root Account, Starting and Stopping the System, Booting from a Floppy, Using LILO to Boot, Shutting Down Linux; Mounting File Systems : Mounting a Floppy, CD-ROM, Creating a New file System, Un-mounting file Systems, Backup and restore:



Compressing files with gzip, Using tar and cpio; Setting up your System : Setting the System Name, Using a Maintenance Disk, Forgetting the root Password, Setting the Login Message. ★

Networking & Network Services: What is TCP/IP? IP Address, Ports, Sockets, Subnets, Routing, Hardware Requirements, Configuring the Network, Configuration Files, Testing and Troubleshooting, Thenetstart Command, ping, traceroute, Mail, News, NFS, www, FTP, Telnet, DNS.

Network Security: Firewalls.

REFERENCES:

1. Tim Parker : Linux Unleashed Third Edition, Techmedia, 1999.
2. Tackett, J : Special Edition using LINUX, PHI.
3. Norton, P. : Complete guide to LINUX, Techmedia.
4. Komarinski, M : LINUX System Administration Handbook, AW.
5. SUMITABHA DAS : UNIX Concepts & Application 2nd Edition, Tata McGraw-Hill

Handwritten signatures and initials in the bottom right corner of the page. There are four distinct marks: a large, stylized signature at the top right, a smaller signature below it, and two more signatures at the bottom left and bottom right.

MS-223: Research Methodology**Maximum Marks: 70****Minimum Pass Marks: 35%****Maximum Time: 3 Hrs.****Lectures to be delivered: 40-45****A) INSTRUCTIONS FOR THE PAPER SETTER**

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION-A

Objectives and types of research: Definition and types of research (Descriptive and analytical research, applied and fundamental research, qualitative and quantitative research, conceptual and empirical research).

Research problem formulation: Defining and formulating research problem and its necessity, selecting the problem, literature review and its importance; Primary and secondary data sources-library (books, journals, periodicals, reference sources, abstracting and indexing sources, reviews, monographs), patents, web (search engines, online libraries, online journals, e-books, e-encyclopedia, institutional websites); Journals and books-standards of research journals (impact factor, ISSN, ISBN, online and print journals, indexed journals, peer reviewed journals), citation index, H-index; Identifying gaps areas from literature review.

Research design and methods: Developing the research hypothesis; Research design – basic principles and need, important concepts; Observations and facts, laws and theories, prediction and explanation, induction, deduction; Development of models, developing a research plan, exploration, description, diagnosis, experimentation.

Data collection: Execution of research, observation and collection of data, methods of data collection, primary data, secondary data.

Documentation: Techniques and importance of documentation; Role of internet, information technology and computers in research and documentation.

SECTION-B

Reporting and thesis writing: Structure and components of research report, types of report-monographs, review articles, research papers, thesis, books, technical reports and their significance; Different steps in preparation of a written scientific document- layout, structure and language of reports, illustrations and tables, bibliography, references, footnotes.

Presentation of research papers: Poster presentations-layout and format; Oral presentation-planning, preparation, use of visual art, importance of effective communication.

Application of intellectual property rights: Commercialization, copyright, royalty, intellectual property rights and patent law; Plagiarism-concept and authentication of originality of research; Citation and acknowledgement; Reproducibility and accountability.

Cost analysis of project: Cost incurred on raw materials, different testing procedures, cost of instrumentation, downstream processing cost (wherever required); Cost of clinical trials.

Research grants: National/International funding agencies; Government and private bodies.

RECOMMENDED READING

1. Statistics – An Introductory Analysis by Taro Yamane, Harper International Edition, 1994.
2. An Introduction to Statistical Methods by C.B. Gupta, Vikas Publ. Co., Jalandhar, 1997.
3. Research Methodology: Methods and Techniques by CR Kothari and Gaurav Garg by NewAge International Publishers (Third Edition), ISBN-10:8122436235, ISBN-13:978-8122436235
4. Research Methodology: A step-by-step Guide for Beginners by Ranjit Kumar, SAGE Publications, ISBN-13: 978-1849203012

MS- 224 : Artificial Intelligence

Maximum Marks: 70
Minimum Pass Marks: 35%

Maximum Time: 3 Hrs.
Lectures to be delivered: 40-45

A) INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Sections: A, B and C. Sections A and B will have four questions each from the respective section of the syllabus and will carry 10.5 marks for each question. Section C will consist of 7-15 short answer type questions covering the entire syllabus uniformly and will carry a total of 28 marks.

B) INSTRUCTIONS FOR THE CANDIDATES

1. Candidates are required to attempt five questions in all, selecting two questions each from Section A and Section B and compulsory question of Section C.
2. Use of non-programmable scientific calculator is allowed.

SECTION A

Introduction to AI : Definition, Nilsson's Onion Model explaining basic Elements of AI and AI application Areas.

Logical Reasoning: Introduction to Propositional Logic: Syntax, Semantics, Inference methods in Propositional Logic. Introduction to Predicate Logic: Syntax, Semantics of Predicate Logic, Clausal form, Resolution, Unification, Inference Mechanisms.

Knowledge Based Systems : Meaning of Knowledge, Types of Knowledge, Components of Knowledge Base System. Knowledge Representation : Approaches to Knowledge representation, Issues in Knowledge representation, Knowledge representation using rules. Semantic Nets, Frames, Conceptual Dependencies, Scripts, CYC. Knowledge Acquisition : Definition, General Learning Model, Types of Learning, Factors affecting Learning. Knowledge organization & Manipulation: Introduction, Issues in organization and manipulation.

SECTION B

Dealing with uncertainty: Symbolic reasoning under uncertainty-Introduction and logics for Non-monotonic reasoning, Implementation issues.

Prolog Programming : Features of Prolog, Elementary Data Types, Compound objects in Prolog, Writing simple program in Prolog, Understanding Default flow control of the Prolog Program, Controlling Program Flow with cut and fail, List Manipulation, String manipulation, Arithmetic operators, Input /Output statement.

Expert systems : Basic Components & architecture of Expert systems, representing and using domain knowledge, ES-Shells.

Applications of AI : Game Playing-The minmax Search Procedure, Adding Alpha-beta Cutoff's Planning-Overview, Components of Planning System, Natural Language processing : Overview, Syntactic processing, Semantic analysis, Morphological, Discourse and Pragmatic processing.

Reference Books :-

1. E. Rich and K. Knight, "Artificial Intelligence", Tata McGraw Hill.
2. E. Charniak and D. McDermott, "Introduction to Artificial Intelligence", Addison-Wesley Publishing Company.
3. Dan W. Patterson, "Introduction to Artificial Intelligence and Expert Systems", PHI.
4. W.F. Clovisin and C.S. Melfish, "Programming in PROLOG", Narosa Publishing Co.
5. Sanjiva Nath, "Turbo PROLOG", Galgotia Publications Pvt. Ltd.

MS-225 : Programming Lab-VI (Computer Graphics)

Maximum Marks: 100*

Max. Time: 3 Hrs.

Minimum Pass Marks: 35%

Practical sessions to be conducted: 60-70

This laboratory course will mainly comprise of exercise based on subject MS-221: Computer Graphics.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination: 70

[Handwritten signatures and initials]

MS-226 : Programming Lab-VII (LINUX Administration)

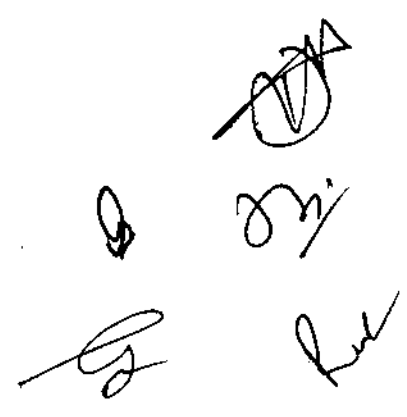
Maximum Marks: 100*
Minimum Pass Marks: 35%

Max. Time: 3 Hrs.
Practical sessions to be conducted: 60-70

This laboratory course will mainly comprise of exercise based on subject MS-222 : LINUX ADMINISTRATION.

*Maximum Marks for Continuous Assessment: 30

Maximum Marks for University Examination: 70

Handwritten signatures and initials, including a circled 'V' with a checkmark, 'S', 'S', 'G', and 'R'.