

CSE-301 F

Principles of Operating Work Systems

L T P

3 1 -

Class Work : 50 Marks

Exam : 100 Marks

Total : 150 Marks

Duration of Exam : 3 Hrs.

NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.

Section-A

Introduction: Introduction to Operating System Concepts (including Multitasking, multiprogramming, multi user, Multithreading etc)., Types of Operating Systems: Batch operating system, Time-sharing systems, Distributed OS, Network OS, Real Time OS; Various Operating system services, architecture, System programs and calls.

Process Management: Process concept, process scheduling, operation on processes; CPU scheduling, scheduling criteria, scheduling algorithms -First Come First Serve (FCFS), Shortest-Job-First (SJF), Priority Scheduling, Round Robin(RR), Multilevel Queue Scheduling.

Section-B

Memory Management: Logical & Physical Address Space, swapping, contiguous memory allocation, non-contiguous memory allocation paging and segmentation techniques, segmentation with paging; virtual memory management - Demand Paging & Page- Replacement Algorithms; Demand Segmentation.

Section-C

File System: Different types of files and their access methods, directory structures, various allocation methods, disk scheduling and management and its associated algorithms, Introduction to distributed file system.

Process-Synchronization & Deadlocks: Critical Section Problems, semaphores; methods for handling deadlocks-deadlock prevention, avoidance & detection; deadlock recovery.

Section-D

I/O Systems: I/O Hardware, Application I/O Interface, Kernel, Transforming I/O requests, Performance Issues and Thresds .

Unix System And Windows NT Overview

Unix system call for processes and file system management, Shell interpreter, Windows NT architecture overview, Windows NT file system.

Text Books:

1. Operating System Concepts by Silberchatz et al, 5 edition, 1998, Addison-Wesley.
2. Modern Operating Systems by A. Tanenbaum, 1992, Prentice-Hall.
3. Operating Systems Internals and Design Principles by William Stallings,4 edition, 2001, Prentice-Hall.

Reference Books:

1. Operating System By Peterson , 1985, AW.
2. Operating System By Milankovic, 1990, TMH.
3. Operating System Incorporating With Unix & Windows By Colin Ritche, 1974, TMH.
4. Operating Systems by Mandrik & Donovan, TMH
5. Operating Systems By Deitel, 1990, AWL.
6. Operating Systems – Advanced Concepts By Mukesh Singhal , N.G. Shivaratri, 2003, T.M.H

EE-309-F

MICROPROCESSORS AND INTERFACING

L T P
3 1 -

Theory : 100 Marks

Class work : 50 Marks

Total : 150 Marks

Duration of Exam : 3 Hours

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Section A

THE 8085 PROCESSOR :

Introduction to microprocessor, 8085 microprocessor : Architecture, instruction set, interrupt structure, and Assembly language programming.

Section B

THE 8086 MICROPROCESSOR ARCHITECTURE :

Architecture, block diagram of 8086, details of sub-blocks such as EU, BIU; memory segmentation and physical address computations, program relocation, addressing modes, instruction formats, pin diagram and description of various signals

Section C

INSTRUCTION SET OF 8086 :

Instruction execution timing, assembler instruction format, data transfer instructions, arithmetic instructions, branch instructions, looping instructions, NOP and HLT instructions, flag manipulation instructions, logical instructions, shift and rotate instructions, directives and operators, programming examples.

Section D

INTERFACING DEVICE :

8255 Programmable peripheral interface, interfacing keyboard and seven segment display, 8254 (8253) programmable interval timer, 8259A programmable interrupt controller, Direct Memory Access and 8237 DMA controller.

TEXT BOOKS :

1. Microprocessor Architecture, Programming & Applications with 8085 : Ramesh S Gaonkar; Wiley Eastern Ltd.
2. The Intel Microprocessors 8086- Pentium processor : Brey; PHI

REFERENCE BOOKS:

1. Microprocessors and interfacing : Hall; TMH
2. The 8088 & 8086 Microprocessors-Programming, interfacing,Hardware & Applications :Triebel & Singh; PHI
3. Microcomputer systems: the 8086/8088 Family: architecture, Programming & Design : Yu-Chang Liu & Glenn A Gibson; PHI.
4. Advanced Microprocessors and Interfacing : Badri Ram; TM

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Section-A

Introduction to Computer Graphics: What is Computer Graphics, Computer Graphics Applications, Computer Graphics

Hardware and software, Two dimensional Graphics Primitives: Points and Lines, Line drawing algorithms: DDA, Bresenham's; Circle drawing algorithms: Using polar coordinates, Bresenham's circle drawing, mid point circle drawing algorithm; Filled area algorithms: Scanline: Polygon filling algorithm, boundary filled algorithm.

Section-B

Two/Three Dimensional Viewing: The 2-D viewing pipeline, windows, viewports, window to view port mapping; Clipping: point, clipping line (algorithms):- 4 bit code algorithm, Sutherland-cohen algorithm, parametric line clipping algorithm (Cyrus Beck).

Polygon clipping algorithm: Sutherland-Hodgeman polygon clipping algorithm. Two dimensional transformations: transformations, translation, scaling, rotation, reflection, composite transformation.

Section-C

Three-dimensional transformations: Three dimensional graphics concept, Matrix representation of 3-D Transformations, Composition of 3-D transformation.

Viewing in 3D: Projections, types of projections, the mathematics of planner geometric projections, coordinate systems.

Hidden surface removal: Introduction to hidden surface removal. The Z- buffer algorithm, scanline algorithm, area sub-division algorithm.

Section-D

Representing Curves and Surfaces: Parametric representation of curves: Bezier curves, B-Spline curves. Parametric representation of surfaces; Interpolation method.

Illumination, shading, image manipulation: Illumination models, shading models for polygons, shadows, transparency. What is an image? Filtering, image processing, geometric transformation of images.

Text Books:

1. Computer Graphics Principles and Practices second edition by James D. Foley, Andeies van Dam, Stevan K. Feiner and Johb F. Hughes, 2000, Addision Wesley.
2. Computer Graphics by Donald Hearn and M.Pauline Baker, 2 Edition, 1999, PHI.

Reference Books:

1. Procedural Elements for Computer Graphics – David F. Rogers, 2001, T.M.H Second Edition
2. Fundamentals of 3Dimensional Computer Graphics by Alan Watt, 1999, Addision Wesley.
3. Computer Graphics: Secrets and Solutions by Corrign John, BPB
4. Graphics, GUI, Games & Multimedia Projects in C by Pilania & Mahendra, Standard Publ.
5. Computer Graphics Secrets and solutions by Corrign John, 1994, BPV
6. Introduction to Computer Graphics By N. Krishanmurthy T.M.H 2002

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Section-A

Finite Automata and Regular Expressions: Finite State Systems, Basic Definitions Non-Deterministic finite automata (NFA), Deterministic finite automata (DFA), Equivalence of DFA and NFA Conversion of NFA to DFA Finite automata with E- moves, Regular Expressions, Equivalence of finite automata and Regular Expressions, Regular expression conversion and vice versa.

Introduction to Machines: Concept of basic Machine, Properties and limitations of FSM. Moore and mealy Machines, Equivalence of Moore and Mealy machines, state and prove Arden's Method.

Section-B

Properties of Regular Sets: The Pumping Lemma for Regular Sets, Applications of the pumping lemma, Closure properties of regular sets, Myhill-Nerode Theorem and minimization of finite Automata, Minimization Algorithm.

Grammars: Definition, Context free and Context sensitive grammar, Ambiguity regular grammar, Reduced forms, Removal of useless Symbols, unit production and null production Chomsky Normal Form (CNF), Griebach Normal Form (GNF).

Section-C

Pushdown Automata: Introduction to Pushdown Machines, Application of Pushdown Machines

Turing Machines: Deterministic and Non-Deterministic Turing Machines, Design of T.M, Halting problem of T.M., PCP Problem.

Section-D

Chomsky Hierarchies: Chomsky hierarchies of grammars, Unrestricted grammars, Context sensitive languages, Relation between languages of classes.

Computability: Basic concepts, Primitive Recursive Functions.

Text Book:

1. Introduction to automata theory, language & computations- Hopcroft & O.D.Ullman, R Mothwani, 2001, AW.

Reference Books:

1. Theory of Computer Sc.(Automata, Languages and computation):K.L.P.Mishra & N.Chandrasekaran, 2000, PHI.
2. Introduction to formal Languages & Automata-Peter Linz, 2001, Narosa Publ..
3. Fundamentals of the Theory of Computation- Principles and Practice by RamondGreenlaw and H. James Hoover, 1998, Harcourt India Pvt. Ltd..
4. Elements of theory of Computation by H.R. Lewis & C.H. Papaditriou, 1998, PHI.
5. Introduction to languages and the Theory of Computation by John C. Martin 2003, T.M.H.

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Section A

JAVA: Introduction to JAVA, Basics Data Types, Operators, Classes and Methods, Access Specifiers, Arrays, Inheritance, Polymorphism, Threads, Package and Interfaces, Exception Handling, IO Applets, Generics and Collections

Section B

Basic terms: WWW, XML, HTML, XHTML, W3C.

Descriptive markup: Meta tags for common tasks, semantic tags for aiding search, the doubling code and RDF. Separating style from structure with style sheets: Internal style specifications within HTML, External linked style specification using CSS, page and site design considerations.

Client side programming: Introduction to the JavaScript syntax, the JavaScript object model, Event handling, Output in JavaScript, Forms handling, miscellaneous topics such as cookies, hidden fields, and images; Applications.

Section C

Server side programming: Introduction to Server Side Technologies CGI/ASP/JSP., Programming languages for server Side Scripting, Configuring the server to support CGI, its applications; Input /output operations on the WWW. Forms processing, (using PERL / VBScript / JavaScript)

Section D

Other dynamic content Technologies: Introduction to ASP & JSP, Delivering multimedia over web pages, The VRML idea, The Java phenomenon-applets and Servlets, issues and web development. Introduction to Microsoft .NET Technology and its comparison with the competing Technologies

Text Books:

1. JAVA: The Complete Reference, Herbert Schildt.
2. Beginning XHTML by Frank Boumpery, Cassandra Greer, Dave Raggett, Jenny Raggett, Sebastian Schnitzenbaumer & ted Wugofski, 2000, WROX press (Indian Shroff Publ. SPD) 1st edition
3. HTML & XHTML: The Definitive Guide by Chuck Musciano, Bill Kennedy, 2000, 4th Edi.

Reference books:

1. XHTML Black Book by Steven Holzner, 2000
2. CGI Programming on the World Wide Web. O'Reilly Associates.
3. Web Technologies By Achyut S Godbole , Atul Kahate, 2003, T.M.H
4. Scott Guelich, Shishir Gundararam, Gunther Birzniek; CGI Programing with Perl 2/e O'Reilly.
5. Doug Tidwell, James Snell, Pavel Kulchenko; Programming Web services, O'Reilly.
6. Intranets by James D.Cimino, 1997, Jaico Publ.
7. Internet and Web Technologies – Raj Kamal, 2002, T.M.H

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Section-A

Basics of Multimedia Technology: Computers, communication and entertainment; multimedia an introduction; framework for multimedia systems; multimedia devices; CD- Audio, CD-ROM, CD-I, presentation devices and the user interface; multimedia presentation and authoring; professional development tools; LANs and multimedia; internet, World Wide Web & multimedia distribution network-ATM & ADSL; multimedia servers & databases; vector graphics; 3D graphics programs; animation techniques; shading; anti aliasing; morphing; video on demand.

Section-B

Image Compression & Standards: Making still images; editing and capturing images; scanning images; computer color models; color palettes; vector drawing; 3D drawing and rendering; JPEG-objectives and architecture; JPEG-DCT encoding and quantization, JPEG statistical coding, JPEG predictive lossless coding; JPEG performance; overview of other image file formats as GIF, TIFF, BMP, PNG etc.

Section-C

Unit-3: Audio & Video: Digital representation of sound; time domain sampled representation; method of encoding the analog signals; subband coding; fourier method; transmission of digital sound; digital audio signal processing; stereophonic & quadrasonic signal processing; editing sampled sound; MPEG Audio; audio compression & decompression; brief survey of speech recognition and generation; audio synthesis; musical instrument digital interface; digital video and image compression; MPEG motion video compression standard; DVI technology; time base media representation and delivery.

Section-D

Virtual Reality: Applications of multimedia, intelligent multimedia system, desktop virtual reality, VR operating system, virtual environment displays and orientation making; visually coupled system requirements; intelligent VR software systems. Applications of environment in various fields.

Text Books:

1. An introduction, Villamil & Molina, Multimedia Mc Milan, 1997
2. multimedia: Sound & Video, Lozano, 1997, PHI, (Que)

Reference Books:

1. Multimedia: Production, planning and delivery, Villamil & Molina, Que, 1997
2. Multimedia on the PC, Sinclair, BPB
3. Multimedia: Making it work, Tay Vaughan, fifth edition, 1994, TMH.
4. Multimedia in Action by James E Shuman, 1997, Wadsworth Publ.,
5. Multimedia in Practice by Jeff coate Judith, 1995, PHI.
6. Multimedia Systems by Koegel, AWL
7. Multimedia Making it Work by Vaughar, etl.
8. Multimedia Systems by John .F. Koegel, 2001, Buford.
9. Multimedia Communications by Halsall & Fred, 2001, AW.

List of programs to be developed

1. Write a program for 2D line drawing as Raster Graphics Display.
2. Write a program for circle drawing as Raster Graphics Display.
3. Write a program for polygon filling as Raster Graphics Display
4. Write a program for line clipping.
5. Write a program for polygon clipping.
6. Write a program for displaying 3D objects as 2D display using perspective transformation.
7. Write a program for rotation of a 3D object about arbitrary axis.
8. Write a program for Hidden surface removal from a 3D object.

Note : At least 5 to 10 more exercises to be given by the teacher concerned.

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Class Work : 25 Marks
Exam : 25 Marks
Total : 50 Marks
Duration of Exam : 3 Hrs.

Java programs using classes & objects and various control constructs such as loops etc , and data structures such as arrays , structures and functions.

Java programs for creating Applets for display of Images ,Texts and Animation

Programs related to interfaces & packages

Input output & Random files programs in java

Java programs using Event driven concept Programs related to Network Programming

Development of Web site for the college or newspaper agency.

Books recommended for Lab.

1. Java Elements – Principles of Programming in Java , Duane A. Bailey , Duane W. Bailey, 2000, T.M.H
2. The Java Handbook by Patrick Naughton, TMH, N.Delhi

IT- 208 F

Multimedia Technologies Lab.

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- - 2

Class Work : 25 Marks

Exam : 25 Marks

Total : 50 Marks

Duration of Exam : 3 Hrs.

1. Write a program to justify a text entered by the user on both the left and right hand side. For example, the text “ An architect may have a graphics program to draw an entire building but be interested in only ground floor”, can be justified in 30 columns as shown below.
An architect may have a Graphics programs draw an Entric building but be interested in only ground floor.
2. Study the notes of a piano and stimulate them using the key board and store them in a file.
3. Write a program to read a paragraph and store it to a file name suggested by the author.
4. Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle.
5. Write a program to show a bitmap image on your computer screen.
6. Create a web page for a clothing company which contains all the details of that company and at least five links to other web pages.
7. Write a program by which we can split mpeg video into smaller pieces for the purpose of sending it over the web or by small capacity floppy diskettes and then joining them at the destination.
8. Write a program to simulate the game of pool table.
9. Write a program to simulate the game Mine Sweeper.
10. Write a program to play “wave” or “midi” format sound files.

Note : At least 5 to 10 more exercises to be given by the teacher concerned

EE- 329 F

Microprocessors and Interfacing Lab.

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Class Work : 25 Marks
Exam : 25 Marks
Total : 50 Marks
Duration of Exam : 3 Hrs.

List Of Experiments:

1. Study of 8085 Microprocessor kit.
2. Write a program using 8085 and verify for :
 - a. Addition of two 8-bit numbers.
 - b. Addition of two 8-bit numbers (with carry).
3. Write a program using 8085 and verify for :
 - a. 8-bit subtraction (display borrow)
 - b. 16-bit subtraction (display borrow)
4. Write a program using 8085 for multiplication of two 8- bit numbers by repeated addition method. Check for minimum number of additions and test for typical data.
5. Write a program using 8085 for multiplication of two 8- bit numbers by bit rotation method and verify.
6. Write a program using 8085 for division of two 8- bit numbers by repeated subtraction method and test for typical data.
7. Write a program using 8085 for dividing two 8- bit numbers by bit rotation method and test for typical data.
8. Study of 8086 microprocessor kit
9. Write a program using 8086 for division of a defined double word (stored in a data segment) by another double Word division and verify.
10. Write a program using 8086 for finding the square root of a given number and verify.
11. Write a program using 8086 for copying 12 bytes of data from source to destination and verify.
12. Write a program using 8086 and verify for:
 - a. Finding the largest number from an array.
 - b. Finding the smallest number from an array.
13. Write a program using 8086 for arranging an array of numbers in descending order and verify.
14. Write a program using 8086 for arranging an array of numbers in ascending order and verify.
15. Write a program for finding square of a number using look-up table and verify.

16. Write a program to interface a two digit number using seven-segment LEDs. Use 8085/8086 microprocessor and 8255 PPI.
17. Write a program to control the operation of stepper motor using 8085/8086 microprocessor and 8255 PPI.

Note:

At least ten experiments have to be performed in the semester out of which seven experiments should be performed from above list.

Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus of EE-309-C.

CSE - 313 F

Operating Systems Lab.

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Class Work : 25 Marks

Exam : 25 Marks

Total : 50 Marks

Duration of Exam : 3 Hrs.

1. Study of WINDOWS 2000 Operating System.
2. Administration of WINDOWS 2000 (including DNS,LDAP, Directory Services)
3. Study of LINUX Operating System (Linux kernel, shell, basic commands pipe & filter commands)
4. Administration of LINUX Operating System.
5. Writing of Shell Scripts (Shell programming).
6. AWK programming.