

(DMCS21)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY - 2019

(Second Year)

COMPUTER SCIENCE

User Interface Design

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Discuss in detail about models used in user interface design.
- Q2)** What are the types of mouse button? Explain in detail about the types operations that can be done with them.
- Q3)** Explain in detail about dialog boxes and its types.
- Q4)** Explain various states of windows and also describe different window postures.
- Q5)** What are the different kinds of usability testing? Explain any four in detail.
- Q6)** What are the factors involved in choosing platform for design and development of a system.
- Q7)** Give any four comparisons of graphical and web user interface.
- Q8)** Identify the merits and demerits of Drag and Drop operation with illustrations.
- Q9)** Describe techniques for visual indication of selection.

DMCS21)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY - 2019

(Second Year)

COMPUTER SCIENCE

User Interface Design

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Write about orchestration and flow presentation.
- Q2)* Briefly explain about Bit maps.
- Q3)* Describe different kinds of graphical menus.
- Q4)* Write about how to process messages.
- Q5)* What is goal directed design?
- Q6)* What is visualization?
- Q7)* What is mumble screen?
- Q8)* What is dialog box?
- Q9)* What are the alerts?



(DMCS22)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Computer Graphics

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Explain in detail Raster scan display and random scan display systems with complete architecture diagram.
- Q2)** Digitize a line from (1, 2) to (12, 18) on the raster screen using Bresenham's straight line algorithm and compare it with line generated using DDA.
- Q3)** Explain Cohen Sutherland line clipping algorithm with example.
- Q4)** Write about 3 – D rotation, scaling and transformation matrices.
- Q5)** Explain about interactive picture construction techniques and input modes.
- Q6)** Describe character generation algorithm with neat diagram.
- Q7)** Briefly explain about inside and outside test.
- Q8)** Retrieve equation for the scaling factor to map the window to view-port in 2D viewing system.
- Q9)** What is shear transformation? Explain X-shear and Y-shear with example.

(DMCS22)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Computer Graphics

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Write about perspective projections.
- Q2)* Describe logical classification of input devices.
- Q3)* Explain about area subdivision method.
- Q4)* What is 3-D composite transformation? Give example.
- Q5)* Define aspect ratio.
- Q6)* What is text clipping?
- Q7)* Define visible surface.
- Q8)* Define flood filling.
- Q9)* What is aliasing?



(DMCS23)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Object Oriented Analysis and Design

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** What do you mean by object oriented analysis and design? Discuss in detail the object-oriented analysis and design process with a suitable example.
- Q2)** State and explain with suitable example common modeling techniques of the UML relationships.
- Q3)** Consider the Hospital Management System application with the following requirements.
- a) System should handle the in-patient, out-patient information through receptionist.
 - b) Doctors are allowed to view the patient history and give their prescription.
 - c) There should be information system to provide the required information.
- Give the state chart, component and deployment diagrams.
- Q4)** What is an activity diagram? Explain how activity diagram focuses on flows driven by internal processing with the help of suitable example.
- Q5)** Explain with suitable example, which diagrams give a static and which diagrams give dynamic view of a system.
- Q6)** What are the steps in software development life cycle?
- Q7)** What are the different degrees of coupling among the objects?
- Q8)** Write about 4+1 view architecture of UML.
- Q9)** What is need of component diagram? Give an example for component diagram.

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ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE
Object Oriented Analysis and Design
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

Q1) What are the actors? List the three kinds of actors.

Q2) What are the characteristics of well-structured packages?

Q3) What artifacts may start in Inception?

Q4) Explain state machine diagram with an example.

Q5) Define use case.

Q6) What is inception?

Q7) Define domain object.

Q8) What are the design patterns?

Q9) Define low coupling.



(DMCS24A)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY - 2019

(Second Year)

COMPUTER SCIENCE

Advanced Computer Architecture

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Explain about the design of Pipelined instruction processing.
- Q2)** Explain about the architecture of Cyber – 205.
- Q3)** Explain about mesh connected illiac networks.
- Q4)** Explain about the language features of exploit parallelism.
- Q5)** Explain about the Systolic Array architecture.
- Q6)** Explain about multiprocessor systems.
- Q7)** Explain about prefetch and branch handling schemes.
- Q8)** Explain about vector loops in Cray-I.
- Q9)** Explain about SIMD matrix multiplication algorithm.

(DMCS24A)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY - 2019

(Second Year)

COMPUTER SCIENCE

Advanced Computer Architecture

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** List and describe the applications of illiac – IV.
- Q2)** Explain about the classification of parallel algorithms.
- Q3)** Explain about the difference between control flow and dataflow computers.
- Q4)** Explain about Cray X-mp system architecture.
- Q5)** Explain about Virtual Memory.
- Q6)** Explain about SIMD networks.
- Q7)** Explain about crossbar switch.
- Q8)** What is static data flow computer?
- Q9)** What is Cache memory?



(DMCS24B)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY - 2019

(Second Year)

COMPUTER SCIENCE

Microprocessor & Applications

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Explain about 8086 addressing modes.
- Q2)* Explain about Logic and Shift instructions of 8086.
- Q3)* Explain about DMA transfer with neat diagram.
- Q4)* Explain about iRMX86.
- Q5)* Explain about Virtual Memory.
- Q6)* Explain about 8086 register organization.
- Q7)* Explain about the application of microprocessors in digital system design.
- Q8)* Explain about 8086 assembly directives and operators.
- Q9)* Explain about Flag manipulation instructions.

(DMCS24B)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY - 2019

(Second Year)

COMPUTER SCIENCE

Microprocessor & Applications

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Explain about procedures in 8086.
- Q2)** Explain about interrupt routine.
- Q3)** Explain about multiprogramming.
- Q4)** Explain about semaphores.
- Q5)** Explain about the microprocessor and microcomputer.
- Q6)** Explain about 8086 internal operations.
- Q7)** Explain about HLT instruction.
- Q8)** What are different types of I/O transfer?
- Q9)** What is a process?



(DMCS25A)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE
Cryptography and Network Security

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Discuss about different Classical Encryption Techniques.
- Q2)** Explain about Chinese Remainder theorem and Euler's theorem with example.
- Q3)** Describe Encryption and decryption functions of Triple DES. Compare its strength with DES.
- Q4)** Differentiate between hashing and encryption. What are the practical applications of hashing? Compare MD5 and SHA1 hashing algorithms.
- Q5)** With a neat sketch explain the IPsec scenario and IPsec Services.
- Q6)** What are the two approaches to attacking a cipher? What is the difference between a block cipher and a stream cipher?
- Q7)** Write differences between substitution techniques and transposition techniques.
- Q8)** How are keys generated in Cast-128 algorithm?
- Q9)** Explain RSA Algorithm with example.

(DMCS25A)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE
Cryptography and Network Security

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

Q1) What are the similarities and differences between S? MIME and PGP?

Q2) State and explain Fermat's.

Q3) What is digital signature? Explain its use with the help of example.

Q4) What is a firewall? What is the need for firewalls?

Q5) Define public key.

Q6) Define steganography.

Q7) What is AES?

Q8) Define Diffi Hellman key exchange.

Q9) What is Kerberos?



(DMCS25B)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY - 2019

Second Year
Computer Science

TCP/IP

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Explain about LAN, WANS and Switched WANS.
- Q2)** Explain about Internet Protocol
- Q3)** Explain about TCP protocol.
- Q4)** Explain about RIP.
- Q5)** Explain about DHCP.
- Q6)** Explain about different TCP/IP versions.
- Q7)** Explain about supernetting.
- Q8)** Explain about the difference between static and dynamic routing.
- Q9)** Explain about ICMP checksum.

(DMCS25B)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY - 2019

Second Year
Computer Science

TCP/IP

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Explain about UDP package.
- Q2)* Explain about IGMP encapsulation,
- Q3)* Explain about Client-Server Model.
- Q4)* Explain about DNS messages.
- Q5)* What is classless addressing.
- Q6)* What is direct and indirect delivery?
- Q7)* Explain about TCP checksum.
- Q8)* What is multicast routing?
- Q9)* What is NVT?



(DMCS26)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Data Warehousing and Data Mining

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** Discuss three data warehouse models - the enterprise warehouse, the data mart and the virtual warehouse.
- Q2)** Discuss about different activities of ETL process.
- Q3)** Explain briefly star and snowflake schema. Also point out the major difference between the two. Which is popular in the data warehouse design?
- Q4)** Explain about oracle data warehouse builder and it works.
- Q5)** Discuss typical OLAP operations in brief.
- Q6)** What are the various Star Schema Keys? Explain with the help of an example.
- Q7)** Differentiate between Data Warehouse and Data Mart.
- Q8)** Write about Data loading with respect to Data warehouse.
- Q9)** Explain Data granularity in Data Warehouse.

(DMCS26)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Data Warehousing and Data Mining

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Describe briefly the basic components of a data warehouse snapshot.
- Q2)* What are the technological challenges in bringing the system-of-record data into the data warehouse?
- Q3)* Describe basic algorithm for inducing a Decision tree from training samples.
- Q4)* What are the methods to index OLAP data?
- Q5)* What is ROLAP?
- Q6)* Define multidimensional data model.
- Q7)* Define association rule mining.
- Q8)* Give any two data mining tasks.
- Q9)* What is drill – down analysis?



(DMCS27A)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, JUNE - 2019

Second Year

Computer Science

Embedded Systems

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

- Q1)* Explain about the design issues of cordless barcode scanner.
- Q2)* Compare Characteristics of Various Software Architectures
- Q3)* Explain with suitable example how the semaphores as signaling device.
- Q4)* Explain about linker/locators for embedded software
- Q5)* What are the main goals of software development for embedded systems? Explain how an Host system meets these goals.
- Q6)* Explain about ASIC.
- Q7)* If two interrupts happen at the same time, which interrupt routine does the microprocessor do first?
- Q8)* Draw and explain the timing diagram for a static RAM.
- Q9)* Explain about RTOS task states.

(DMCS27A)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, JUNE - 2019
Second Year
Computer Science
Embedded Systems
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Explain about the interrupt latency with examples.
- Q2)* Discuss about Hard Real-Time Scheduling Considerations.
- Q3)* Explain about testing embedded software.
- Q4)* Explain about Encapsulating a Message Queue.
- Q5)* Explain about Processor Hogs
- Q6)* What are the advantages and disadvantages of edge triggered flip-flops?
- Q7)* Explain about RTOS task states.
- Q8)* What is the advantage using multiple semaphores?
- Q9)* Explain about the uses of Volt Meters and Ohm Meters.



(DMCS27B)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY - 2019

Second Year

COMPUTER SCIENCE

Image Processing

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

- Q1)** a) What are the various fundamental steps in digital image processing? Explain
b) Obtain the Haar transformation matrix for $N=8$.
- Q2)** Explain the use of histogram statistics for image enhancement.
- Q3)** Draw the functional block diagram of general image compression system and explain it.
- Q4)** Explain about image restoration using inverse filtering and give the draw backs of this method.
- Q5)** What are the different applications of image segmentation? Explain different image segmentation techniques.
- Q6)** What is meant by spatial resolution and explain its significance.
- Q7)** Illustrate first and second derivatives of a 1 -D digital function representing a section of horizontal intensity profile from an image.
- Q8)** What is log transformation? How it is useful in image processing?
- Q9)** Write the difference between wavelet transform and Fourier transform.

(DMCS27B)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY - 2019

Second Year

COMPUTER SCIENCE

Image Processing

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

- Q1)** Explain the effect of noise on edge detection.
- Q2)** Compare 'Homomorphic' and 'Inverse' Filtering. How do noise affect color channels?
- Q3)** Explain Huffman coding with example.
- Q4)** Briefly explain about region based segmentation.
- Q5)** What is lossless compression?
- Q6)** Define Hough transform.
- Q7)** What is the concept of histogram equalization?
- Q8)** Define erosion and dilation operations.
- Q9)** Define image degradation.



(DMCS28A)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Artificial Intelligence

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** a) State 8 – puzzle problem? Construct state space tree for this problem.
b) Discuss various application areas of AI.
- Q2)** What is heuristic function of A* algorithm? Explain about A* algorithm with suitable example.
- Q3)** Implement Justification Truth Maintenance system with ABC murder story.
- Q4)** What are the components of script? Develop a script for restaurant problem.
- Q5)** Explain about augmented transition network and case grammars.
- Q6)** Explain about Turing test.
- Q7)** What is control strategy? How is it related to control knowledge?
- Q8)** Differentiate DFS and BFS algorithms.
- Q9)** Describe resolution theorem in propositional logic.

(DMCS28A)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE
Artificial Intelligence
MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Write about procedural knowledge and declarative knowledge.
- Q2)* Explain partitioned semantic network with example.
- Q3)* Represents the sentence “Vishwant gives Vidhushi a Book” into CD form.
- Q4)* Write about expert system shell.
- Q5)* Define state space search.
- Q6)* Define abduction.
- Q7)* What is augmented problem solver?
- Q8)* Define expert system.
- Q9)* What is frame?



(DMCS28B)

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Compiler Design

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)** a) State and describe various phases of compilers.
b) Explain about boot strapping in compilers.
- Q2)** Consider the grammar given below:
 $S \rightarrow A$
 $A \rightarrow aB \mid Ad$
 $B \rightarrow bBC \mid f$
 $C \rightarrow g$
a) Find the FIRST and FOLLOW set.
b) Construct Predictive Parsing table.
c) Trace whether the string “abffgg” is accepted or not.
- Q3)** Explain about syntax directed definition and syntax directed translation with example.
- Q4)** Discuss different storage allocations strategies.
- Q5)** Illustrate loop optimization with suitable example.
- Q6)** Construct DFA for the regular expressions: $(a+b)^* a(a+b)$.
- Q7)** Describe the functions of lexical analyzer.
- Q8)** What is left factoring? Explain it with suitable example.
- Q9)** Apply shift reduce parser for parsing following string using unambiguous grammar.
 $id - id * id - id$

(DMCS28B)

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATION, MAY – 2019
Second Year

COMPUTER SCIENCE

Compiler Design

MAXIMUM : 30 MARKS
ANSWER ALL QUESTIONS

- Q1)* Translate the expression: $a = b * - c + b * - c$ into quadruples and triples.
- Q2)* What is a symbol table? Discuss the most suitable data structure for it.
- Q3)* Describe various addressing modes and their costs.
- Q4)* Explain about common sub – expression elimination and copy propagation with example.
- Q5)* What is interpreter?
- Q6)* Define input buffering.
- Q7)* Define operator precedence grammar.
- Q8)* Define basic block.
- Q9)* What is meant by abstract syntax tree?

