DMCS21

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

User Interface Design

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Discuss usability requirements and usability motivations of interactive systems.

Q2) Explain three pillar approach of user interface development.

Q3) Explain in detail about dialog boxes and types.

Q4) Discuss various presentation controls and their usage.

Q5) Write about the working with bit maps and icons.

Q6) Explain about Object action interface model.

Q7) What are the merits and demerits of “drag and drop operation” with illustrations?

Q8) List the states of windows and explain them.

Q9) Compare menus and dialog boxes.

Q10) Write about various “Cursor hinting” techniques use.

DMCS21

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

User Interface Design

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) What is meant by orchestration and flow presentations?

Q2) Write about additive and group selection methods.

Q3) Explain idiocy and task coherence.

Q4) What is the goal of directed design?

Q5) What are the alerts?

Q6) Differentiate undo and redo operations.

Q7) What is Gizmos?

Q8) What are the meta keys?

DMCS22

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Computer Graphics

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) a) Explain the working principle of various graphic input devices with neat sketches.

b) Demonstrate line from (20, 10) to (30, 18) with all necessary calculation using DDA.

Q2) Explain 8-connected boundary filled and polygon filled algorithms with examples.

Q3) Clip the line PQ having coordinates P (4, 1) and Q (6, 4) against the clip window having vertices A (3, 2), B (7, 2), C (7, 6) and D (3, 6) using Cohen Sutherland line clipping algorithm. Mention the limitations of algorithm. How it can be overcome?

Q4) What are the classification of the visible surface detection algorithms? Discuss any two.

Q5) a) Find the composite transformation matrix for mirror reflection of a 3D object with respect to the plane passing through the origin and having a normal vector whose direction is N = I + J + K.

b) Derive the equations for parallel projections.

Q6) Differentiate raster scan display and random scan display.

Q7) Explain odd-even method of determining polygon inside points.

Q8) Prove that two successive 2-D rotation are additive (i.e. $R(\theta_1).R(\theta_2) = R(\theta_1 + \theta_2)$)

Q9) Explain the terms Window and viewport with reference to 2-D displays.

Q10) In translate a triangle with vertices at original coordinates (10, 20), (10, 10), (20, 10) by t_x =5, t_y=10, compute the resultant coordinate of the triangle.

DMCS22

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Computer Graphics

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Briefly explain about interactive picture construction techniques.

Q2) Write down 3 – D rotation matrices.

Q3) Explain Back face detection method in brief.

Q4) Define resolution.

Q5) What is Shearing?

Q6) Define antialiasing.

Q7) Define composite transformation.

Q8) What is meant by viewing pipelining?

x x x

DMCS23

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Object Oriented Analysis and Design

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) a) Explain basic principles of modeling.

b) Draw the architecture of a software-intensive system and explain each element.

Q2) Draw the complete use case diagram for the library system and explain the relationships and responsibilities of various actors.

Q3) What is the purpose of deployment diagram? Give one example. How are these different from collaboration diagrams?

Q4) Describe the strategies used to identify the conceptual classes. Describe the steps to create domain model used for representing the conceptual classes.

Q5) Explain the forward engineering tool and reverse engineering tool for a sample code with respect to the state chart diagram.

Q6) Describe various behavioral things.

Q7) Write about aggregation and composition with example.

Q8) Briefly explain about Stereotypes and Tagged Values.

Q9) Compare and Contrast is-a relationship with has-a relationship.

Q10) Illustrate static and dynamic model of a system.

DMCS23

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Object Oriented Analysis and Design

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about forking and joining concepts in activity diagram with an example.

Q2) What is an event? What are different types of events?

Q3) Write short notes on object oriented languages.

Q4) What is an artifact?

Q5) What are interaction diagrams?

Q6) Distinguish signals and active classes.

Q7) What is meant by high cohesion?

Q8) State 100% rule.

DMCS24A

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Advanced Computer Architecture

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about the pipeline Computers and Array Computers.

Q2) Explain about Illiac - IV system architecture.

Q3) Explain about the SIMD array processors in detail.

Q4) Explain about the classification of multiprocessor operating systems.

Q5) Explain about the Cray X - MP architecture.

Q6) Explain about the parallel processing applications.

Q7) Explain about the characteristics of Vector processing.

Q8) Explain about the specifications of AP-120B.

Q9) Explain about Parallel Memory Allocation.

Q10) Explain about the Time - shared bus system.

DMCS24A

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Advanced Computer Architecture

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about the dimensions of multiprocessor management.

Q2) Explain about different types of Multiprocessor Systems.

Q3) Explain about the dataflow computers.

Q4) What is the advantages using instruction prefetch.

Q5) What is SIMD array processor?

Q6) What is the difference between Static and Dynamic Network.

Q7) What is processor Synchronization?

Q8) What is the difference between control flow and data flow computers.

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DMCS24B

ASSINGMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Microprocessor & Applications

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about 8086 internal architecture with a neat block diagram.

Q2) Explain about 8086 athematic instructions with examples.

Q3) Explain about interrupt driven I/O transfer with a neat flow chart.

Q4) Explain about process management in iRMX 86.

Q5) Explain about iRMX 86 semaphore operations.

Q6) Explain about general operations of a computer.

Q7) Explain about different types of data representation.

Q8) Explain about 8086 LOOP instructions.

Q9) List different types of flags available in 8086 and write their functions.

Q10) Explain about linking.

DMCS24B

ASSINGMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Microprocessor & Applications

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about 8086 procedures.

Q2) Explain about multiprogramming.

Q3) Explain about virtual memory.

Q4) What is an effective address?

Q5) What is the purpose of NOP instruction.

Q6) What is an interrupt.

Q7) What is a process.

Q8) List key features of iRMX 86.

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DMCS25A

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Cryptography and Network Security TCP/IP

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Discuss about different security mechanisms and security services.

Q2) Explain Data Encryption standard (DES) in detail.

Q3) How message authentication code can be used to achieve message authentication and confidentiality? Explain.

Q4) Describe the process involved in digital signatures and explain digital signature algorithm.

Q5) What does authentication header provide in case of IP security? Explain the various fields in Authentication Header.

Q6) State and explain different types of attacks.

Q7) Encrypt the message “Exam” using the Hill cipher with the key .

Q8) Write the process of AES encryption with neat diagram.

Q9) Explain avalanche effect in DES and discuss strength of DES in brief.

Q10) How are keys generated in Cast-128 algorithm?

DMCS25A

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Cryptography and Network Security TCP/IP

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Calculate cipher text in case of RSA if p=3, q=11, e=3, M=5.

Q2) What characteristics are needed in a secure hash function?

Q3) What steps sending PGP (pretty good privacy) perform? Explain PGP message generation.

Q4) Define authentication.

Q5) What is mono alphabetic cipher.

Q6) What is a dual signature?

Q7) Give the difference between public and private key cryptography.

Q8) What is Firewall?

DMCS25B

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

TCP/IP

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain different types of IP addressing in detail.

Q2) Discuss the ICMP protocol.

Q3) Explain about User Datagram Protocol.

Q4) Explain about BOOTP protocol.

Q5) Discuss about TELNET protocol.

Q6) Explain about switched WANs.

Q7) Explain about subnetting.

Q8) Compare between direct and indirect delivery of IP packets.

Q9) Write in detail about RARP.

Q10) Give in detail the different types of ICMP messages.

DMCS25B

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

TCP/IP

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q11) Explain about TCP congestion control.

Q12) Explain about MBONE.

Q13) Explain about BGP.

Q14) What is a LAN.

Q15) Define fragmentation.

Q16) What is a Silly Window Syndrome.

Q17) What is Multicast tree.

Q18) What is Rlogin.

♦♦♦♦

DMCS26

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Dataware Housing and Datamining

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Discuss data warehouse design methodologies.

Q2) Explain about different elements of ETL architecture.

Q3) What is data cube? Explain different operations on data cube.

Q4) Write about working oracle data warehouse builder.

Q5) Draw and explain the data mining architecture and discuss major issues in data mining.

Q6) Explain how the Data Warehouse different from relational database.

Q7) Write about star schema design issues.

Q8) Explain the role of ‘metadata repository’ in a data warehouse.

Q9) Describe the activities of ETL process.

Q10) Describe Data granularity in Data Warehouse.

DMCS26

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

(Second Year)

COMPUTER SCIENCE

Dataware Housing and Datamining

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Write the components of a data warehouse snapshot.

Q2) What is OLAP? Give the difference between OLAP and OLTP.

Q3) Write about association rule mining.

Q4) What is data mart?

Q5) Define clustering.

Q6) Define Enterprise Warehouse.

Q7) What is Virtual Warehouse?

Q8) What is ‘data discretization’?

DMCS27A

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Embedded Systems

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Discuss about the embedded system design challenges with reference to Telegraph system.

Q2) Explain the term 'interrupt Latency'. Discuss various measures to reduce the interrupt latency in embedded applications.

Q3) Discuss about the Round - Robin - with - interrupts with an example.

Q4) Explain about Timer functions and Events.

Q5) Discuss about various laboratory tools used for embedded system debugging.

Q6) Explain about ROM.

Q7) Explain about the Signal Loading.

Q8) Explain about Wait signals and Wait states.

Q9) Explain about PAL.

Q10) Explain about shortcomings in round robin architecture.

DMCS27A

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Embedded Systems

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about semaphore problems.

Q2) What is best plan for testing of an embedded system?

Q3) Explain about software only monitors.

Q4) What is FPGA?

Q5) How does the scheduler know when a task has become blocked or unblocked?

Q6) If two interrupts happen at the same time, which interrupt routine does the microprocessor do first?

Q7) What is Test Scaffold Code?

Q8) Explain about the getting “Visibility” into the Hardware.

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DMCS27B

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Image Processing

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Describe various components of image processing system.

Q2) Explain the basic concepts of sampling and quantization in the generation of digital image.

Q3) What is Histogram of an Image? Explain the concept of Histogram Equalization technique for Image enhancement.

Q4) Discuss different image compression models.

Q5) Illustrate threshold based and region based image segmentation with example.

Q6) Explain about image acquisition using a circular sensor strip.

Q7) State the relationships between pixels.

Q8) Explain the concept of wavelet packets and write its advantages.

Q9) Compute the Haar transform of the 2×2 image

Q10) What is error free image compression.

DMCS27B

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Image Processing

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain the duality of erosion and dilation operations.

Q2) Explain the effect of noise on edge detection.

Q3) What is meant by edge linking? Explain edge linking using local processing.

Q4) Define Walsh Transform.

Q5) What is meant by pixel depth?

Q6) Define high boost filter.

Q7) Define Fourier spectrum.

Q8) What is the concept of histogram equalization?

♦♦♦♦

DMCS28A

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

ARTIFICIAL INTELLIGENCE

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Determine the start state, goal state and legal moves and draw the state space diagram for the well - known water jug problem listed below:
"Given two water jugs of 4 liters and 3 liters' capabilities, neither have any measuring marks on it. There is pump that can be used to fill the jugs. How can you get exactly two liters of water into 4-liter jug"

Q2) Solve the following Crypt Arithmetic Problem:
SEND + MORE = MONEY

Q3) What is matching? Describe different matching techniques with example.

Q4) Draw a Conceptual dependency form of the following statements:

i) John gave a coin to the beggar.

ii) John ate ice-cream with a spoon.

Q5) Explain the architecture of expert system and also give working of expert system shell.

Q6) Describe production system characteristics.

Q7) Explain the term local maxima and plateau in Hill climbing.

Q8) Assume the facts:

i) Steve only likes easy courses

ii) Science courses are hard.

iii) All courses in the arts department are easy.

iv) TL_301 is an arts department course.

Use resolution to answer the question which course would Steve like?

Q9) Differentiate procedural knowledge and declarative knowledge.

Q10) Explain Dependency directed back tracking.

DMCS28A

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

ARTIFICIAL INTELLIGENCE

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Describe the components of script.

Q2) Write short notes on common sense ontologies.

Q3) Write about semantic and pragmatic analysis.

Q4) Define heuristic search.

Q5) Define Well – formed formulae.

Q6) Define Non – monotonic reasoning.

Q7) List any two examples of expert systems.

Q8) What is AND – OR graph?

Q9) How are production system and control strategies applied in solving AI problems?

Q10) Explain semantic nets with example.

♦♦♦♦

DMCS28B

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Compiler Design

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) a) How does lexical analyzer help in the process of compilation? Consider the following Conditional statement : "if (x > 3) then y = 5 else y = 10;"

b) Construct DFA for the regular expression (a + b)*ab(a + b)*

Q2) Design canonical parser for the following grammar :

$S \rightarrow CC$, $C \rightarrow cC|d$

Q3) Explain Quadruple, triple, and indirect triple with suitable example.

Q4) What is syntax directed definition and syntax directed translation? Discuss.

Q5) Generate machine code for the following instruction and also compute its cost v = a + (b * c) – d.

Q6) Write about Boot strapping.

Q7) Draw transition diagram for relational operators.

Q8) Write about operator precedence parsing technique with example.

Q9) What is left recursion? Eliminate left recursion from the following grammar :

$S \rightarrow (L) |a$, $L \rightarrow L, S | S$

Q10) Draw a DAG for expression : a + a* (b – c) + (b – c)*d.

DMCS28B

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY - 2020

Second Year

COMPUTER SCIENCE

Compiler Design

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Describe how the symbol table organized.

Q2) Explain how type checking and error reporting is performed in compiler.

Q3) Write short notes on Peephole optimization.

Q4) What is meant by handle pruning?

Q5) Define NFA and DFA.

Q6) Define sentential form.

Q7) What is meant by code motion?

Q8) Define 1 – attributes and s – attributes.

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