

(DCS 411/DIT 411)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Science

Paper I — OBJECT ORIENTED ANALYSIS AND DESIGN

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsory. (15 × 1 = 15)

Answer ONE question from each Unit. (4 × 15 = 60)

1. (a) What are the main underlying concepts of object orientation?
- (b) What is CRC?
- (c) What use case?
- (d) Define model consistency.
- (e) What is the main advantage of object oriented development?
- (f) What is significance of activity diagram?
- (g) Define concurrency.
- (h) What is meant by interfaces?
- (i) What is design pattern?
- (j) Differentiate persistent and non-persistent objects.
- (k) What do you meant by static and dynamic modeling?
- (l) What is guard condition?
- (m) What is Quality assurance?
- (n) Define software metric.
- (o) What is planning?

UNIT I

2. (a) Discuss the advantages of Object Oriented Approach.
- (b) Explain about use-case realization.

Or

3. (a) Describe the basic activities of Object oriented analysis and explain how Use-Case modeling is useful in analysis.
- (b) Explain about class diagrams with suitable example.

UNIT II

4. (a) Describe the software development patterns.
- (b) Write short notes on interaction and collaboration diagrams with suitable example.

Or

5. Explain about physical design, system design and detailed design with suitable example.

UNIT III

6. (a) Discuss about major elements of system design.
- (b) Explain about integrity constraints.

Or

7. (a) Describe the approaches to user interface design.
- (b) Write about documenting pattern templates.

UNIT IV

8. (a) Describe the different testing strategies.
- (b) Discuss about reusable components.

Or

9. (a) Explain about unified software development process.
 - (b) Explain hard methodology and soft methodology.
-

(DCS 412 / DIT 412)

B. Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer science

Paper II — COMPUTER NETWORKS

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsorily. (15 × 1 = 15)

Answer ONE question from each Unit. (4 × 15 = 60)

1. (a) Give any two services of data link layer.
- (b) Define rate based flow control.
- (c) What is Ethernet?
- (d) Define packet switching.
- (e) What is data gram subnet?
- (f) Define distance vector routing.
- (g) Define congestion.
- (h) Define marshaling.
- (i) What is bridge?
- (j) What is meant by network topology?
- (k) Give the different types of message formats.
- (l) What is buffering?
- (m) Define cipher text.
- (n) Define authentication.
- (o) What is message digest?

UNIT I

2. (a) Describe the network layer design issues.
- (b) Explain about distance vector routing.

Or

3. (a) What are the elements of internet protocol header?
- (b) Describe the IP address format.

UNIT II

4. Explain about connection establishment and connection release in transport layer?

Or

5. (a) Explain about TCP header in detail.
- (b) Describe the transport service primitives.

UNIT III

6. (a) Explain about world wide web with its architecture?
- (b) Discuss various functions performed by the e-mail systems.

Or

7. (a) Describe the basic components of multimedia system.
- (b) Write short notes on audio compression.

UNIT IV

8. (a) Explain about DES symmetric key algorithm.
- (b) Describe the various cipher modes.

Or

9. (a) Write short notes on digital signatures.
- (b) Explain about e-mail security.

(DCS 413 / DIT 413)

B. Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Science

Paper III — COMPILER DESIGN

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsorily. (15 × 1 = 15)

Answer ONE question from each Unit. (4 × 15 = 60)

1. (a) Define compiler.
- (b) Define DFA.
- (c) What is regular expression?
- (d) Define parsing.
- (e) Define left factoring.
- (f) Define context free grammar.
- (g) Syntax directed definition.
- (h) Procedure call.
- (i) What is dead code elimination.
- (j) Operator precedence parsing.
- (k) What is purpose of labelling algorithm.
- (l) What is symbol table.
- (m) Give the purpose of YACC tool.
- (n) Define boot strapping.
- (o) Give the applications of DAG.

UNIT I

2. (a) Describe the phase of compiler.
(b) Give the functions of lexical analyzers.

Or

3. (a) Write short notes on Lex tool.
(b) Construct DFA for the language contains equal number of a's and b's over the alphabet {a,b}.

UNIT II

4. (a) Check the following grimmer is LL(1) or not

$$E \rightarrow E + T / T$$

$$T \rightarrow T * F / F$$

$$F \rightarrow (E) / a$$

- (b) What is left recursion? Write a procedure to eliminate left recursion.

Or

5. (a) Write an algorithm for construction of CLR parsing table .
(b) Construct CLR parsing table for the following grammar.

$$S^1 \rightarrow S$$

$$S \rightarrow CC$$

$$C \rightarrow cC / d$$

UNIT III

6. (a) Write about s-attributes and l-attributes.
(b) Write short notes on symbol table management.

Or

7. Discuss about procedure calls and record structures.

UNIT IV

8. (a) Describe the storage allocation strategies.
- (b) Discuss about error recovery and detection mechanism.

Or

9. (a) Describe the peephole optimization.
 - (b) Write about code - generation algorithm.
-

(DCS 414 E/DIT 414 E)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Science

Paper IV — VLSI DESIGN

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsorily. (15 marks)

Answer ONE question from each Unit. (4 × 15 = 60)

1. Write briefly on the following :
 - (a) Sketch the CMOS fabrication of p-channel device in an n-well with p-type substrate. (2)
 - (b) What are set up time and hold times? (2)
 - (c) What is meant by ultra fast VLSI circuits? (2)
 - (d) What is Boundary Scan? (2)
 - (e) Distinguish between static RAM and Dynamic RAM. (2)
 - (f) What is inverter pair delay? (2)
 - (g) What is Back-annotation in CAD systems? (3)

UNIT I

2. (a) Draw the CMOS inverter characteristics and explain the CMOS inverter characteristics in all the five distinct regions of operation.
- (b) Explain different types of scaling models. Write down scaling factors used for these models.

Or

- (c) Derive the equations for transconductance g_m and output conductance g_{ds} of a MOS transistor.
- (d) Draw the layout of Bi-Cmos inverter.

UNIT II

- 3. (a) Explain the switch logic implementation of four-way multiplexer. Compare the nmos and transmission gate implementation and Justify which is the better one?
 - (b) Implement the EX-OR gate using Dynamic CMOS logic.
- Or
- (c) Implement Half-adder circuit using PLA.
 - (d) Explain about structured design.

UNIT III

- 4. (a) Explain about forming arrays of memory cells.
- Or
- (b) Explain about one transistor dynamic memory cell.
 - (c) Explain the disadvantages of single transistor dynamic RAM cell.

UNIT IV

- 5. (a) Explain the circuit simulation.
 - (b) Explain the following processes in the ASIC design flow.
 - (i) Post - layout timing simulation.
 - (ii) Post synthesis simulation.
- Or
- (c) Explain the terms Simulation, Synthesis and test vector generation pertaining to VLSI Design.
 - (d) Explain about the following CAD tools.
 - (i) Design Rule Verification
 - (ii) Layout Versus Schematic verification.
-

(DCS 414 F/DIT 414 F)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Sciece

Paper IV — IMAGE PROCESSING

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsorily. (15 × 1 = 15)

Answer ONE question from each Unit. (4 × 15 = 60)

1. (a) What is the need of image processing?
- (b) What is Hit-and Miss transform?
- (c) Edge Detection.
- (d) Segmentation.
- (e) Pruning.
- (f) What is sampling?
- (g) Distinguish between image enhancement and image restoration.
- (h) What is image smoothening?
- (i) What are the advantages of filters in frequency domain?
- (j) Define Walsh transform.
- (k) Define Histogram.
- (l) Give the Pixel operations.
- (m) What is thinning?
- (n) Define thresolding.
- (o) What is point detection?

UNIT I

2. (a) Discuss few examples of how logical operation may be performed on images.
(b) Give the applications of image processing.

Or

3. (a) Discuss the various elements of visual perception.
(b) Explain about image sampling quantization.

UNIT II

4. Explain various techniques to sharpen an image using frequency domain.

Or

5. (a) Explain image Enhancement techniques using arithmetic operators.
(b) Compare and contrast various smoothing filters.

UNIT III

6. (a) Discuss about wiener filtering.
(b) Explain the degradation model for continuous function.

Or

7. Explain about one dimension and two dimension wavelet transform.

UNIT IV

8. (a) What is Error Free compression? Explain about the Huffman coding techniques.
(b) Discuss about image compression standards

Or

9. (a) Explain about the region based segmentation methods.
(b) Discuss about global thresholding technique.
-

(DCS 415 B/DIT 415 B)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Science

Paper V — CRYPTOGRAPHY AND NETWORKS SECURITY

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsory. (5 × 3 = 15)

Answer ONE question from each Unit. (4 × 15 = 60)

1. (a) Define Cryptography.
- (b) What are the strengths of DES?
- (c) Define Virus.
- (d) Define hash function.
- (e) Define Public key.

UNIT I

2. (a) What are the Block Cipher Principles?
- (b) Explain DES.

Or

- (c) What is the encryption algorithm?
- (d) (i) How securit is it (above)?
- (ii) Define Rotor machines.

UNIT II

3. (a) Explain RSA algorithm with example.

Or

(b) Explain Chinese Remainder theorem with example.

UNIT III

4. (a) Briefly explain IP security architecture.

(b) Explain Oakley Key determination in protocol.

Or

(c) Explain Authentication Header.

(d) Briefly explain Encapsulating security payload.

UNIT IV

5. (a) Define different classes of intruders.

(b) Explain password protection.

Or

(c) Explain different virus related Threats.

(d) Explain types of Firewalls.

(DCS 415 E/DIT 415 E)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012

(Examination at the end of Final Year)

Computer Science

Paper V — SOFT COMPUTING

Time : Three hours

Maximum : 75 marks

Answer Question No.1 compulsorily. (15)

Answer any ONE question from each Unit. (4 × 15 = 60)

1. (a) What is an associative memory?
- (b) What are the important characteristics that ANN share with biological neural system?
- (c) What is stability – plasticity dilemma?
- (d) What is called principle of incompatibility?
- (e) What are the applications of K-means clustering?

UNIT I

2. (a) Describe the competitive learning.
 - (b) Explain biological activations and signals.
- Or
- (c) Draw the architecture of multilayer feed forward network and explain its working.

UNIT II

3. (a) Explain the multi objective decision making with an example.
- Or
- (b) Explain Tsukamoto model with an example.

UNIT III

4. (a) Explain fuzzy-C mean clustering with an example.

Or

- (b) Discuss the subtractive clustering with an example.

UNIT IV

5. (a) What are the types of crossovers. Explain the crossover with example.

Or

- (b) What is genetic algorithm? Explain the generational cycle rank with an example.
-

(DCS 421/DIT 421)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012

(Examination at the end of Final Year)

Computer Science

Paper VII — INDUSTRIAL MANAGEMENT

Time : Three hours

Maximum : 75 marks

Answer Q.No.1 which is compulsory. (15 marks)

Answer any FOUR questions. (4 × 15 = 60)

1. Write short notes on :
 - (a) Successful leader
 - (b) Job Analysis
 - (c) Placement
 - (d) Compensation
 - (e) Retailer
 - (f) Impact of Advertisements
 - (g) Discounts
 - (h) Promotion
 2. Describe the functions of Management.
 3. What are the types of Depuciation?
 4. What are the different sources of Recruitment?
 5. Outline the objectives of Inventory Control.
 6. Define 'Marketing'. What are the functions of Marketing?
 7. Briefly explain about methods of Training.
 8. What are the features of partnership form of business?
 9. Distinguish between Private limited and Public limited company.
-

(DCS 422/DIT 422)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Science

Paper VIII — ADVANCED COMPUTER ARCHITECTURE

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsorily questions. (15)

Answer ONE question from each Unit. (4 × 15 = 60)

1. Write briefly on the following:

- (a) What is SIMD computer? (2)
- (b) Explain Grain size. (2)
- (c) What is branch prediction? (2)
- (d) What is hierarchical bus system? (2)
- (e) What is super scalar processor? (2)
- (f) What is multi threading? (2)
- (g) What is critical section? (3)

UNIT I

- 2. (a) Describe shared memory multiprocessors models.
- (b) Explain conditions of parallelism.

Or

- 3. (a) Explain program flow mechanism.
- (b) Explain dynamic connection networks.

UNIT II

4. (a) Explain super scalar processors.
- (b) Explain VLIW architecture.

Or

5. (a) Explain linear pipeline process.
- (b) Explain instruction pipeline design.

UNIT III

6. (a) Explain crossbar switch and multiport memory.
- (b) Explain message passing techniques.

Or

7. (a) Explain cache coherence and synchronous mechanisms.
- (b) Explain multithreading principles.

UNIT IV

8. (a) Explain parallel programming models.
- (b) Explain message passing program development.

Or

9. (a) Explain principles of synchronization.
 - (b) Write a short notes on parallel languages and compilers.
-

(DCS 423/DIT 423)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012

(Examination at the end of Final Year)

Computer Science

Paper IX — DATA WAREHOUSING AND DATA MINING

Time : Three hours

Maximum : 75 marks

Answer Question No.1 compulsorily.

Answer ONE question from each Unit.

1. (a) Write down the applications of data warehousing.
- (b) What is concept hierarchy? Give an example.
- (c) What are the various forms of data preprocessing?
- (d) Write the two measures of Association Rule.
- (e) What is Pruning?
- (f) Give the strategies for data reduction.
- (g) Distinguish between classification and clustering.
- (h) List out the major strength of decision tree method.

UNIT I

2. (a) Discuss about three-tier data warehouse architecture.
- (b) What is multidimensional analysis? Discuss with example.

Or

3. (a) Discuss various issues in data mining.
- (b) Describe the architecture of typical data mining system.

UNIT II

4. (a) What is meant by data discretization? Explain about the entropy based discretization.
- (b) Discuss the star-cubing algorithm for computing iceberg cubes.

Or

5. Write Apriori algorithm for finding frequent item sets for mining Boolean association rules.

UNIT III

6. What are the Bayesian classifiers? Explain in detail about :
 - (a) Naïve Bayesian classification.
 - (b) Linear and multiple regressions.

Or

7. Discuss the back propagation algorithm for neural network based classification of data.

UNIT IV

8. Discuss the following clustering algorithm :
 - (a) BIRCH
 - (b) CURE
 - (c) DBSCAN

Or

9. (a) Write a short note on Outliers.
 - (b) Explain k-medoids partitioning algorithm.
-

(DCS 424 (A)/DIT 424 (A))

B.Tech. DEGREE EXAMINATION, DECEMBER 2012.

(Examination at the end of Final Year)

Computer Science

Paper X — EMBEDDED SYSTEM

Time : Three hours

Maximum : 75 marks

Answer Question No. 1 compulsory. (15 marks)

Answer ONE question from each Unit. (4 × 15 = 60)

1. Write short notes on the following :

- (a) Define tri-state devices. (2)
- (b) What is DMA? (2)
- (c) What is a background debug monitor? (2)
- (d) What is an Event? (2)
- (e) What is a priority inversion? (2)
- (f) Define In-circuit Emulator. (2)
- (g) Define Hard and Soft Real time system. (3)

UNIT I

2. (a) Explain the functional block diagram of a Microprocessor.
(b) Explain about DMA with an alternative architecture and timing diagram.

Or

- (c) Explain about open collector and tristating outputs with circuit diagrams.
- (d) How to separate caches for instruction, data and branch-transfer help?

UNIT II

3. (a) What is Reentrancy? What are the three rules to be followed by a function to be reentrant?
- (b) Explain in detail about various Software Architectures.

Or

- (c) Explain about the software architecture best suited, for a traffic light controller system.
- (d) Differentiate between function queue scheduling and real time operating system architecture.

UNIT III

4. (a) Explain the two rules that an interrupt routine must follow in an RTOS environment.
- (b) Explain various intertask communication methods.

Or

- (c) Explain about the underground tank monitoring system.
- (d) What is the importance of time slicing in a basic design using RTOs?

UNIT IV

5. (a) Explain about the Linker/Locator for an embedded software.
- (b) What are the various Laboratory tools for Testing Embedded system?

Or

- (c) Explain the usage of Logic analyzers in static mode.
- (d) Explain abilities and drawbacks of a Simulator.
-

(DCS 424C/DIT 424C)

B.Tech. DEGREE EXAMINATION, DECEMBER 2012

(Examination at the end of Final Year)

Computer Science

Paper X — TSP AND PSP

Time : Three hours

Maximum : 75 marks

Answer Question No.1 compulsorily.

Answer any ONE question from each Unit.

1. (a) Explain why is Good Engineering important.
- (b) What is Engineering Notebook?
- (c) What is the significance of job member log?
- (d) How to handle Miss Committments? Explain.
- (e) Describe the importance of Code reviews.

UNIT I

2. (a) Explain personnel software process.
- (b) Discuss the importance of weekly activity summary sheet.

Or

- (c) What is product plan? Explain why and how product plans are helpful.
- (d) How to make use of product times and rates data?

UNIT II

3. (a) Explain the importance of size measurement in product planning process.
- (b) Discuss the issues in handling missed comittments.

Or

- (c) What is the need for the schedules? Explain Gantt charts and Check points.
- (d) Discuss the project plan summary sheet.

UNIT III

- 4. (a) Explain various types of software defects and the ways to find and fix the defects.

Or

- (b) What is code review? How do code review checklists helpful?
- (c) Discuss about the coding standards.

UNIT IV

- 5. (a) Explain product quality.
- (b) Discuss the causes and impact of Design defects.

Or

- (c) Discuss the Economics of defect removal. (10)
 - (d) What is the filter view of testing? Explain. (5)
-