M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Computer Science

APPLIED MATHEMATICS FOR COMPUTER SCIENCE

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** the questions.

1. Show that $\left(P \wedge (P \rightarrow Q)\right) \Rightarrow Q.$

2. Construct truth table for $P \rightleftarrows Q.$

3. Prove that $\neg(P \wedge Q) \Leftrightarrow (\neg P \vee \neg Q).$

4. Find the dual of

$$\left(\neg P \wedge Q\right) \vee \left(\neg R \wedge S\right) \wedge \left(\neg S \vee Q\right).$$

5. Define a complete graph and give an example.

6. What is an Eulerian graph ?

7. Explain artificial variable and its use in linear programming.

8. What is the difference between assignment problem and transportation problem ?

9. What is an unbalanced assignment problem ? How to solve it ?

10. What do you mean by degenerate solution to a transportation problem ?

Part B $(5 \times 5 = 25)$

Answer **all** the questions.

11. (a) Verify the following is a tautology or not ?

$$\big((P \wedge \neg Q) \to R\big) \to \big(P \to (Q \vee R)\big).$$

(*Or*)

(b) Obtain disjunctive normal form of

$$P \to \big((P \to Q) \wedge \neg(\neg Q \vee \neg P)\big).$$

12. (a) Show that the following equivalence without constructing truth table :—

$$\big(P \to (Q \vee R)\big) \Leftrightarrow (P \to Q) \vee (P \to R).$$

(*Or*)

(b) Show that $\neg P$ follows logically from

$$\neg(P \wedge \neg Q), \neg Q \vee R, \neg R.$$

13. (a) Draw the binary tree to represent the expression $((2 + x) - (2 \times x)) - (x - 2)$ also find pre-order and post-order representation.

(*Or*)

(b) Draw the graph represented by the following adjacency matrix :—

$$\begin{pmatrix} 1 & 2 & 0 & 1 \\ 2 & 0 & 3 & 0 \\ 0 & 3 & 1 & 1 \\ 1 & 0 & 1 & 0 \end{pmatrix}$$

14. (a) Use graphical method to solve :

Maximize $Z = 2x_1 + 3x_2$

subject to $x_1 + x_2 \leq 1$

$3x_1 + x_2 \leq 4$

$x_1, x_2 \geq 0$

(*Or*)

(b) Use simplex method to find :

Maximize $Z = 3x_1 + 5x_2$

subject to $3x_1 + 2x_2 \leq 18$

$x_1 \leq 4$

$x_2 \leq 6$

$x_1, x_2 \geq 0$

AF-3885

15. (a) Find initial solution of the transportation problem by least cost method :—

	D_1	D_2	D_3	D_4		
F_1	5	7	3	8	300	
F_2	4	6	9	5	500	Availability
F_3	2	6	4	2	200	

200 300 400 100

Requirement

(*Or*)

(b) Solve the following assignment problem to maximize profit :—

	1	2	3	4
A	16	10	14	11
B	14	11	15	15
C	15	15	13	12
D	13	12	14	15

AF-3885

Answer any **three** questions.

16. Show that $\{\uparrow\}$ is a functionally complete set.

17. Show that $R \wedge (P \vee Q)$ is a valid conclusion from the premises $P \vee Q$, $Q \to R$, $P \to M$ and $\neg M$.

18. Find the number of paths of length 4 from the vertex D to the vertex E in the following graph using matrix.
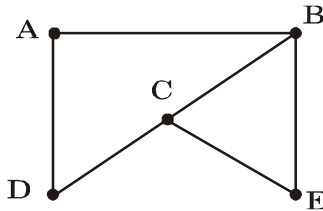
19. Find the optimal solution to the following Transportation problem.

	1	2	3	
A	2	6	10	150
B	5	1	9	250
C	10	9	8	100

250 150 100

Demand

Supply

20. Solve using Big-M method :

$$\text{Manimize } Z = 20x_1 + 10x_2$$

$$\text{subject to } x_1 + 2x_2 \leq 40$$

$$3x_1 + x_2 \geq 30$$

$$4x_1 + 3x_2 \geq 60$$

$$x_1, x_2 \geq 0$$

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AF-3885

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Computer Science

C AND DATA STRUCTURE

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Mention the logical operators in C.

2. List any four commonly used library functions in C.

3. Specify the use of continue statement.

4. Mention the main difference between while and do-while statements.

5. What is the use of sprintf ( ) ?

6. Specify the difference between float a and float ka.

7. Mention the use of header in the linked list.

8. Specify any two applications of stack.

9. What is hashing ?

10. Mention the difference between Binary tree and General tree.

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Explain the formatted input and output functions in C with an example.

(*Or*)

AF-3886

(b) Explain the hierarchy of arithmetic operators in C.

12. (a) Write a C program to check whether a given number is prime or not ?

(*Or*)

(b) Write a C program to sum the individual digits of an integer number.

13. (a) Explain the method of representing two dimensional array in memory.

(*Or*)

(b) Write a C program to interchange two given numbers using pointers.

AF-3886

14. (a)   What is doubly linked list ? Explain.

(*Or*)

(b)   Explain the method of representing queue with an example.

15. (a)   Explain the binary tree traversal methods with an example.

(*Or*)

(b)   Explain binary search with an example.

Answer any **three** questions.

16. Explain the data types available in C with examples.

17. Explain any three decision control statements in C with example.

18. Write a C program to multiply two matrices of order $m \times n$ and $n \times p$.

19. Explain the operations on stack with its algorithm.

20. Explain quicksort algorithm with an example.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Computer Science

OBJECT ORIENTED PROGRAMMING IN JAVA

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. What is JVM ?

2. What is encapsulation ?

3. Define Constructor.

4. What is the use of finalize ( ) method ?

5. Define Multiple threads.

6. What is the use of synchronized statement ?

7. What is the use of replace ( ) method in Java ?

8. Mention any two mouse events in Java.

9. What is the use of Datagram Packet () in Java ?

10. Mention any two advantages of Java Beans.

Part B   (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write the features of Java.

(*Or*)

(b) Explain about character set in Java.

12. (a) Discuss about interfaces.

(*Or*)

(b) Write a Java program to create a student class which contains name and roll no. Write a program to read and display the student information.

13. (a) Discuss about thread priorities.

(*Or*)

(b) Explain about suspending and resuming threads.

14. (a) Write a Java program to concatenate two strings.

(*Or*)

(b) Discuss about the steps involved in creation of push button.

15. (a) What is JDBC ? Explain.

(*Or*)

(b) Write a Java program to display Internet addressing Information.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the various Operators available in Java.

17. Discuss about user defined exceptions with an example.

18. Explain about interthread communication with an example.

19. Explain about four methods in an applet skeleton.

20. Discuss the steps involved in developing a simple servlet.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Computer Science

Elective— OBJECT ORIENTED ANALYSIS AND DESIGN

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What is an Object ?

2.   What is a link and an association ?

3.   Define Process and Data flow.

4.   Define Meta data.

5. Why do we need analysis ?

6. Why do we need to model a problem ?

7. Define ATM network.

8. What is a sub system ?

9. Write hints on designing algorithms.

10. What is robustness ?

<div align="center">

Part B $(5 \times 5 = 25)$

Answer **all** questions

</div>

11. (a)   Explain generalization in detail.

<div align="center">

(*Or*)

</div>

(b)   Explain grouping constructs with example.

12.   (a)   What is an event ? Discuss.

(*Or*)

(b)   Write short notes on Data flow diagrams.

13.   (a)   Write short note on Object modeling.

(*Or*)

(b)   Write short notes on functional modeling.

14.   (a)   What is meant by boundary condition ? Explain.

(*Or*)

(b)   Explain about management of Data stores.

AF-3888

15. (a)   Explain about design of associations.

(*Or*)

(b)   Write notes on adjustment of inheritance.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16. What is an aggregation ? Explain in detail.

17. Discuss about a simple functional model in detail.

18. How do we add the operation of design in various phases ? Discuss.

19. Explain the architecture of ATM system with block diagram.

20. How the analysis and design react in physical packaging of object and how we can make documentation on that object ?

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M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Computer Science

Elective—SYSTEM SOFTWARE

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. Define language processing.

2. Define System software.

3. State the usages of symbol table.

4. Mention the databases used in the design of two pass Assembler.

5. List the databases used in the design of Macroprocessor.

6. Write one advantages of Code optimization.

7. Distinguish linkers and loaders.

8. What is overlay ?

9. Define debug monitor.

10. State the salient features of an editor.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain about Data structures for language processing.

(*Or*)

(b) Explain about Language processor development tools.

12. (a) Explain the elements of assembly language programming with example.

(*Or*)

(b) Write short notes on : A simple assembly scheme.

13. (a) Briefly explain control flow analysis.

(*Or*)

(b) Write short notes on : Macro Expansion.

14. (a) Write short notes on : A toy interpreter.

(*Or*)

(b) Differentiate between Pure and Impure interpreters.

AF-3889

15. (a) Explain about software tools for program Entry and Editing.

(*Or*)

(b) Explain about software tools for program testing and debugging.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain about language processing activities in detail.

17. Explain the design of two-pass assembler with neat flow chart.

18. Explain nested macro calls with example.

19. Explain about design of a Linker in detail.

20. Explain about editors.

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AF-3889

M.Sc. DEGREE EXAMINATION, APRIL 2011

First Semester

Computer Science

DESIGN AND ANALYSIS OF ALGORITHM

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is meant by the following statement ? —"An algorithm takes a time in the order of $t(n)$".

2. What is proof by contradiction ?

3. Define Amortized time.

4. What is an enciphering algorithm ?

5. What is an implicit graph ?

6. What is an articulation point ?

7. What are pseudorandom generators ?

8. When is a parallel algorithm optimal ?

9. What is a complexity class ?

10. State the bin packing problem.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the hybrid approach to analyse algorithms.

(*Or*)

(b) Prove by mathematical induction that every composite integer can by expressed as a product of prime numbers.

12. (a) Explain the analysis of algorithm using Barometer instruction.

(*Or*)

(b) Explain the greedy approach for solving Knapsack problem.

13. (a) Describe the shortest path problem and explain the suitability of dynamic programming for this problem.

(*Or*)

(b) Explain the tree traversal methods.

14. (a) Explain Monte-Carlo integration algorithm.

(*Or*)

(b) Explain how expressions can be evaluated in parallel.

15. (a) Write a short note on polynomial reductions.

(*Or*)

(b) Describe the approximate algorithm for Knapsack problem.

Answer any **three** questions.

16. Explain Average and Worst case analyses for selection sort algorithm.

17. Explain Quicksort algorithm and calculate the time required by that algorithm to sort 'n' elements on the average.

18. Explain backtracking algorithm for the eight queens problem.

19. Explain the problems that can be solved using Las Vegas algorithms.

20. Compare information – theoretic and adversary arguments.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

COMPUTER SYSTEM ARCHITECTURE

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. Differentiate Direct and Indirect address modes.

2. State the use of flag bits (or) status bits.

3. What are the various phases of a instruction cycle ?

4. Define Instruction code.

5. What is a microprogram ?

6.   Differentiate Hardwired control and Micro programmed control.

7.   Differentiate Half duplex and Full duplex Communication.

8.   Define principle of Locality of reference.

9.   Define Multiprocessing.

10.   What do you mean by overlapping registers in RISC architecture ?

Part B   (5 × 5 = 25)

Answer **all** the questions.

11. (a)   Describe the various instruction formats.

(*Or*)

(b) Explain the different Data manipulation instructions.

12. (a) Write short note on Timing and Control.

(*Or*)

(b) Discuss briefly about logical and shift micro operations.

13. (a) Explain the construction and working of micro program sequencer.

(*Or*)

(b) State the advantages and applications of microprogrammed control.

14. (a) Write short note on Associative memory.

(*Or*)

(b) Differentiate Synchronous and Asynchronous data transfer.

15. (a) Describe arithmetic pipeline in detail.

(*Or*)

(b) Explain briefly about any two multiprocessor interconnection structures.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the processor bus organization in detail.

AF-3891

17. Explain the following :—

 (a) Control functions.

 (b) Register Transfer Language.

18. What is control memory ? Explain in detail how address sequencing is done.

19. Describe Cache memory organization in detail.

20. What is Vector processing ? Explain how it is used to manipulate large matrices.

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AF-3891

AF-3892		MCE2C2

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

RDBMS

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. Mention the components of DBMS.

2. Define Strong entity set.

3. What is meant by index ?

4. Define the term File.

5. Define Non Procedural Language.

6.   What is normal form ?

7.   Define Security ?

8.   Expand the term SQL.

9.   Why null values introduced in SQL ?

10.   Write down the syntax for Modifying table.

Part B   (5 × 5 = 25)

Answer **all** the questions

11.   (a)   Explain E-R Model.

(*Or*)

(b)   Discuss on Overflow management in hashed files.

12. (a) Discuss on deferred splitting.

(*Or*)

(b) Explain Secondary indexes in detail.

13. (a) Explain Domain Calculus.

(*Or*)

(b) Write about ZNF about BCNF with examples.

14. (a) Discuss on Database recovery.

(*Or*)

(b) Explain Statistical database security.

AF-3892

15. (a) Write short note on joining multiple tables in a query with example.

(*Or*)

(b) Write about Embedded SQL commands.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Briefly discuss on file organization.

17. Explain B-Tree based Indexed file organization.

18. Explain the various operations involved in Relational Algebra with examples.

19. Discuss on data base system architecture with neat block diagram.

20. Write a brief account on SQL.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

OPERATING SYSTEM

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1.   What are the two main purposes of an operating system ?

2.   Define System program.

3.   Mention any two difference between CPU Scheduler and Job Scheduler.

4.   What is time slicing ?

5. What is thread scheduling ?

6. What is binary semaphore ?

7. Why page sizes are always powers of 2 ?

8. Mention any two purposes of swapping.

9. Define Text file.

10. What is mirroring ?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Explain about parallel systems.

(*Or*)

(b) Explain about I/O structure briefly.

2

12. (a) Discuss about basic concept of process.

(*Or*)

(b) Write the benefits of multithreaded programming.

13. (a) What is real time Scheduling ? Explain.

(*Or*)

(b) Explain about CPU and I/O burst cycle.

14. (a) Explain about contiguous memory allocation briefly.

(*Or*)

(b) Why are segmentation and paging sometimes combined into one scheme ? Explain.

AF-3893

15. (a) Explain any two access methods in file system.

(*Or*)

(b) Explain about boot and bad blocks briefly.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16. Discuss about Real time systems and Distributed systems.

17. Explain about priority and round - robin Scheduling algorithms with an example for each.

18. Explain about deadblock prevention and deadlock detection with an example for each.

19. Discuss about LRU page replacement algorithm with an example.

20. Explain about free space management in detail.

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| AF-3893 |

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

Elective : MOBILE COMPUTING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is IP ?

2. What is Routing ?

3. Define Protocol.

4. Define Modulation.

5. What is Router discovery protocol ?

6. Define Foreign Agent.

7. Define Tunneling.

8. What is Multi cast ?

9. What is WAP ?

10. What is Renumbering ?

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Explain briefly about Laptop computing.

(*Or*)

(b) Write a brief note on mobility.

AF-3894

12. (a) Explain briefly about spread spectrum communication.

(*Or*)

(b) Write a brief note on Multiplexing.

13. (a) Write a brief note on Agent Advertisement.

(*Or*)

(b) What is Registration request ? Explain briefly.

14. (a) Write a brief note on Routing failures.

(*Or*)

(b) What is message format extension ? Explain briefly.

AF-3894

15. (a)   Write a brief note on Broadcast Preference
          Extensions.

(*Or*)

(b)   Explain briefly about Localizing Registrations.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16.   Describe the role of IETF in Mobile Networking.

17.   Explain in detail about GSM Architecture.

18.   Describe in detail about Foreign Agents Registrations.

19.   Explain about Mobile Routers in detail.

20.   Describe in detail about Ingress filtering.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

Elective—GRID COMPUTING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. What is Grid enabled services ?

2. Give any two applications of grid computing.

3. Define Semantic grids.

4. Define Remote instruction blocks.

5. What is peer-peer grid ?

6. Give any two security issues of grid computing.

7. Give the Abbreviation of OSGI ?

8. State the OSGA basic services.

9. Define White pages.

10. What are the tools of grid computing ?

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Discuss the past and future Grid computing technology.

(*Or*)

(b) Give in detail Parallelization techniques.

12. (a) Give in brief about Grid architecture.

(*Or*)

(b) Write short notes on Parset data structure.

13. (a) How will you enable software and grid ?Explain.

(*Or*)

(b) What are the virtualization services for data grids ?

14. (a) What are the concepts of service data ?

(*Or*)

(b) Explain in briefly about OSGA model.

AF-3895

15. (a) Discuss briefly about Brain activity analysis.

(*Or*)

(b) How do you setup a grid ? Explain in detail.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What are programming models ? Explain in detail.

17. Discuss about computational and data grids.

18. Give in detail about Grid management systems.

19. Explain the OGSI in detail.

20. Design a molecular modeling for drug.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

Elective—COMPUTER GRAPHICS

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Write any two names of line drawing algorithms.

2. What are output primitives ?

3. What is a bundle table ?

4. Write the basic transformations.

5. What is meant by a window ?

6. Define Viewing transformation.

7. What is parallel projection ?

8. What do you mean by Rotation ?

9. Write two names of Graphical packages.

10. Write any two classification algorithms.

Part B   (5 × 5 = 25)

Answer **all** questions

11. (a)   Discuss about Computer Animation.

(*Or*)

(b)   Write short notes on Display Devices.

12. (a)   Explain about Character attributes.

(*Or*)

(b)   Write brief note on Area Filling.

13. (a)   Discuss on Multiple work stations.

(*Or*)

(b)   Explain about Physical Input devices.

14. (a)   Explain about Three Dimensional display techniques.

(*Or*)

(b)   Write short notes on Three Dimensional Graphics packages.

15. (a) Discuss on Back face removal algorithm.

(*Or*)

(b) Write short notes on Scan line method.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain about Midpoint Circle Algorithm.

17. Explain in detail about Line Styles.

18. Discuss in detail about Windowing algorithms.

19. Discuss on Three Dimensional transformations.

20. Explain about Projections with its types.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

Elective—PARALLEL PROCESSING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. Define Parallel Processing.

2. Define Speedup.

3. What is Loosely coupled systems ?

4. Define Cube-connected network.

5. What is a graph ?

6. What is Data Parallelism ?

7. Define Complexity.

8. What is Parallel algorithm ?

9. What is Cross bar switch ?

10. Define Arbitration.

Part B $\qquad$ $(5 \times 5 = 25)$

Answer **all** the questions.

11. (a) Write a note on Computational demands of Parallel Processing.

(*Or*)

(b) Differentiate Pipelining and Data Parallelism.

12. (a) Write a note on tightly coupled systems.

(*Or*)

(b) Explain Mesh network.

13. (a) Explain Control Parallelism.

(*Or*)

(b) Write a note on Granularity.

14. (a) Write a note on design approaches of Parallel algorithm.

(*Or*)

(b) Explain performance measure of Parallel algorithm.

AF-3897

15. (a) Write a note on shared bus.

(*Or*)

(b) Explain any one bus- arbitration algorithm.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail the mechanism of implementing Parallel Processing.

17. Explain in detail the Hypercube network with neat diagram.

18. Discuss in detail Message Passing versus Shared address space.

19. Explain in detail the Parallel search algorithms.

20. Discuss in detail about cross bar switch and multiport memories.

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| **AF-3897** |

M.Sc. DEGREE EXAMINATION, APRIL 2011
Second Semester
Computer Science
Elective : SOFTWARE TESTING AND QUALITY ASSURANCE

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is the difference between White box and Black box testing ?

2. What is Validation ?

3. What are equivalence partitions ?

4. What is system testing ?

5. What are mutation operators ? What is their role in testing ?

6. What are reviews ?

7. State any two features of object oriented programs that pose challenges during testing.

8. What is total quality management ?

9. State two differences between Quality control and Quality assurance.

10. What role does a software quality program play in an organization ?

AF-3898

Answer **all** questions.

11. (a) Discuss the need for testing.

(*Or*)

(b) Explain the SDLC in brief.

12. (a) Describe Robustness testing.

(*Or*)

(b) Explain Data flow testing approach.

13. (a) Explain how message sequences are specified in object oriented programs.

(*Or*)

AF-3898

(b)   How are design documents inspected ?

14. (a)   Explain the standards for software quality.

(*Or*)

(b)   Explain Deming's quality concepts.

15. (a)   Explain the purpose of statistical process control.

(*Or*)

(b)   Discuss the issues related to quality control.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16. Explain the test adequacy axioms proposed by Weyuker.

17. Explain Unit testing and Integration testing.

18. Describe how testing object oriented programs is different from non-object oriented programs and explain state based testing.

19. Discuss the benefits of SQA and explain the components required for SQA.

20. Explain the approach to be followed in implementing software quality assurance and control in an organization.

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AF-3898

M.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Computer Science

Elective—DIGITAL IMAGE PROCESSING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1.   What is brightness adaptation ?

2.   Define Sampling and Quantization.

3.   What is a Spatial filter ?

4.   What is Full colour and Pseudo-color ?

5.   What is the use of Weiner filter ?

6. Write any two procedural steps of least square restoration.

7. What is image compression ?

8. What is entropy in information ?

9. What is a discriminant function ?

10. What is training error ?

Part B $(5 \times 5 = 25)$

Answer **all** the questions.

11. (a) Write note on :

(i) Translation.

(ii) Rotation.

(*Or*)

(b) Write the properties of two dimensional Fourier transform.

12. (a) Explain the Gray-level slicing and Bit-plane slicing.

(*Or*)

(b) Explain in detail about Image–subtraction and Image averaging.

13. (a) Write about :

(i) Unconstrained restoration.

(ii) Constrained restoration.

(*Or*)

(b) Explain in detail about the Least mean square filter.

AF-3899

14. (a) Explain the source encoder and decoder of a system model.

(*Or*)

(b) With a neat diagram, explain the lossless predictive coding mode.

15. (a) Describe the perceptron criterion function.

(*Or*)

(b) Explain the Descent Algorithm of relaxation procedure.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain about :

(a) Haar transform.

(b) Slant transform.

4

17. Explain the color models of image processing.

18. Explain in detail about geometric transformations.

19. With a neat diagram, explain the procedure of lossy predictive coding.

20. Explain the applications of pattern recognition.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

COMPUTER COMMUNICATION NETWORKS

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Define Network.

2. List the layers of TCP/IP model.

3. What is meant by ALOHA ?

4. Define Virtual LAN.

5. Define Packet Switching.

6. What is the function of Router ?

7. What is meant by datagram ?

8. What is meant by DNS ?

9. Differentiate : ICMP and IGMP.

10. What is the meant by FDDI ?

Part B (5 × 5 = 25)

Answer **all** questions

11. (a) What is the channel capacity of coaxial cable ? Explain it.

(*Or*)

(b) Explain about HDLC.

12. (a) What is the function of Ethernet ? Explain.

(*Or*)

(b) What is meant by Virtual LAN ? Explain it.

13. (a) Briefly explain about Distance Vector routing.

(*Or*)

(b) Write notes on Internetworking.

14. (a) Briefly explain about IP datagram.

(*Or*)

(b) Brief note on DNS.

AF-3900

15. (a) What is the protocol format of X.25 ? Explain

(*Or*)

(b) Write note on ATM traffic management.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain ISO-OSI reference model with functions of each layer.

17. Explain the Bluetooth in detail.

18. Explain the switching concepts in WAN.

19. Explain in detail about TELNET.

20. With neat structure, explain the FDDI.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

·NET TECHNOLOGY

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1.   Mention the languages in ·Net framework.

2.   Name few ·Net Classes.

3.   Define an event.

4.   Differentiate List box and Combo box.

5.   What is the use of global ajax file ?

6. What do you mean by custom controls ?

7. Define Class.

8. What is shadowing ?

9. What are the benefits of ADO ·Net ?

10. Write down the use of Data Grid.

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Part B $(5 \times 5 = 25)$

Answer **all** the questions.

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11. (a) Explain CLR components.

<div align="center">

(*Or*)

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    (b) Describe the types of assemblies.

12. (a) Explain the datatypes in VB ·Net.

(*Or*)

(b) Write about Dialog boxes in VB ·Net.

13. (a) Explain web controls in ASP ·Net.

(*Or*)

(b) Write short notes on Logging and Error handling in ASP ·Net.

14. (a) Explain Oops concepts.

(*Or*)

(b) Explain the security model in Object oriented Programming.

AF-3901

15. (a)   Write down the characteristics of ADO ·Net.

(*Or*)

(b)   Describe an ADO ·Net Dataset.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16.   Describe the architecture of Common Language Runtime.

17.   Explain any five windows controls with example.

18.   Write short notes on :

(a) Server utility.

(b) HTML Server Controls.

19.   Explain the Polymorphism with an example.

20.   Explain the different data binding controls in ADO ·Net

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AF-3901

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

SOFTWARE ENGINEERING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. "Exhaustive testing is not possible"—Justify.

2. What are the problems occur in prototyping model ?

3. Define Cardinality and Modality.

4. What are the notations used in Data Flow Diagram ?

5. Give productivity rate and estimate rate of COCOMO model.

6. What are the strategies consider in Risk analysis ?

7. Define Problem partitioning.

8. Give any four advantages of data centered system.

9. Define Top-down approach.

10. Give disadvantages of white box testing.

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Discuss about Waterfall model in detail.

(*Or*)

(b) What are the characteristics of SRS and structure of SRS ?

12. (a) Explain in detail about Requirement validation.

(*Or*)

(b) Define and explain the computation of Function Point metric.

13. (a) How the time sheets are used in project monitoring plans ? Explain.

(*Or*)

(b) Explain about coupling and cohesion.

14. (a) Write short notes on Risk analysis and Prioritization.

(*Or*)

(b)   Write short notes on Design specification and verification.

15. (a)   Describe about Testing in Software Development Life Cycle.

(*Or*)

(b)   Life out the different levels of testing and explain about Top down integration testing.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16.   Write down the classification of software metrics and explain in detail.

AF-3902

17. Describe DFD for a Bank management with steps for drawing DFD.

18. Describe about Raleigh curve in detail.

19. Explain in detail about module level concepts.

20. Explain about Mutation and User interface testing.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

Elective—DATA MINING AND DATA WAREHOUSING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Define Data warehousing.

2. Define the term "Concept Learning".

3. What is Association Rule ?

4. What is meant by Data Selection ?

5. What is meta data ?

6. Define Data mart.

7. Define the tern Security.

8. What is Recovery ?

9. Define Planning.

10. State the purpose of tuning the Data warehousing.

Part B (5 × 5 = 25)

Answer **all** the questions.

11. (a) How Data mining is useful in the marketing ?

(*Or*)

(b) Briefly explain about Supervised and Unsupervised learning.

AF-3903

12. (a) Write short notes on Data cleaning.

(*Or*)

(b) Write notes on the following :—

(i) Decision trees.

(ii) Genetic Algorithms.

13. (a) Why we should go for Data aggregation ?

(*Or*)

(b) Briefly explain about Data warehouse Architecture.

14. (a) Discuss in detail about physical layout.

(*Or*)

(b) What are the various operations performed in Data warehouse ?

15. (a) Why we need testing in Data Warehouse ?

(*Or*)

(b) Briefly explain about Capacity planning.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about Data mining *vs* Query tools.

17. What are the various steps involved in KDD ?

18. Discuss about the various Partitioning Strategies in Data warehousing.

19. Explain in detail about Hardware Architecture.

20. State the various features of Data Warehouse.

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AF-3903

M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

Elective—REAL TIME AND EMBEDDED SYSTEMS

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is a real time system ?

2. What is cost function ? Give its equation.

3. What are the states of a process ?

4. Distinguish Fixed priority and Dynamic priority scheduling.

5. What is response time ?

6. How will you calculate the buffer size ?

7. What is cross compiler ?

8. What is ROM emulator ?

9. What is serialization consistency ?

10. Give the properties of transactions.

Part B   (5 × 5 = 25)

Answer **all** questions

11. (a) List and define the various performance measures of real time systems.

(*Or*)

(b) Explain the factors to be considered while estimating the execution time of a program

12. (a) Discuss Static scheduling.

(*Or*)

(b) Explain Round robin scheduling with example.

13. (a) Analyse the memory requirements of embedded systems.

(*Or*)

(b) Discuss about I/O performance.

14. (a) Write a note on testing and fault tolerance.

(*Or*)

AF-3904

(b) Discuss the role of locator in embedded software.

15. (a) Explain briefly the various approaches to concurrency control.

(Or)

(b) Write a note on real time databases.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What is an embedded system ? Explain its architecture.

17. Explain EDf approach with example and compare it with rate monotonic approach.

18. Discuss the procedure for calculating Response time and Loading time.

AF-3904

19. Explain the various methods of getting embedded software into target system.

20. Discuss various Disk scheduling algorithm.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

Elective—MULTIMEDIA SYSTEM

(CBCS—2008 onwards)

Time : 3 Hours　　　　　　　　　Maximum : 75 Marks

Part A　　　　(10 × 2 = 20)

Answer **all** the questions.

1. List out some multimedia application.

2. Specify the major role of multimedia in a network.

3. Define Cloning.

4. List the various CD format.

5. What is MIDI ?

6. Name any two standards for MPEG Video Compression.

7. Define Voice mail.

8. What are the different types of image format ?

9. Mention some VR software available.

10. Specify any two applications of Virtual Reality.

Part B   (5 × 5 = 25)

Answer **all** the questions.

11. (a) Write short notes on Multimedia Standard.

(*Or*)

(b) Discuss the major part of a multimedia PC.

12. (a) Discuss about bitmap compression and palette controlling.

(*Or*)

(b) Write short notes on following :—

 (i) Triggering.

 (ii) Animation.

13. (a) Explain the standards of MPEG motion video compression.

(*Or*)

(b) Explain about the various file storage available.

3 **AF-3905**

14. (a) What is MIME and explain in details ?

(*Or*)

(b) Write about the concept of Teleconferencing.

15. (a) Describe about the head coupled display.

(*Or*)

(b) Write about VR applications and the techniques used in it.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in details about the essential hardware and software components used in multimedia PC.

17. Write the key elements of multimedia and relationship of OS and multimedia.

AF-3905

18. Discuss the various types of Image formats.

19. Describe the problems faced while using the video teleconferencing.

20. Explain about the generic Virtual Reality Systems and the technology used in it.

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M.Sc. DEGREE EXAMINATION, APRIL 2011
Third Semester

Computer Science

Elective : ENTERPRISE RESOURCE PLANNING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. List the major components of ERP system.

2. What is meant by data integration ?

3. Define Presentation interface.

4. What is meant by system control interface ?

5. Define User interface.

6. What is meant by Application integration ?

7. Mention the need for Sales order process.

8. Define Process improvement.

9. What is meant by market place ?

10. Define QAD.

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) Write about ERP.

(*Or*)

(b) Discuss on Software selection.

12. (a)   Discuss about Database interface.

(*Or*)

(b)   Write a brief notes on E-Commerce.

13. (a)   Write about Open technology.

(*Or*)

(b)   Discuss about Database requirement.

14. (a)   Write about Marketing information systems.

(*Or*)

(b)   Discuss about Accounting in ERP systems.

AF-3906

15. (a)   Write a brief note on SAP AG.

(*Or*)

(b)   Discuss about People soft company.

Part C   (3 × 10 = 30)

Answer any **three** questions.

16.   Explain the following :

(a)   Functions in ERP systems.

(b)   Office integration.

17.   Discuss in detail about ERP and internet.

18. Discuss the following :

    (a) Multi client server solution.

    (b) Interfaces with other systems.

19. Explain in detail about Production and Supply Chain Management.

20. Discuss on :

    (a) J.D. Edwards.

    (b) ORACLE Corporation.

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M.Sc. DEGREE EXAMINATION, APRIL 2011
Third Semester

Computer Science

Elective—SECURITY IN COMPUTING

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. List out the types of security attacks.

2. Define Encryption.

3. Mention the types of Firewalls.

4. Define Application level gateway.

5. What is internet ?

6. What is meant by authentication ?

7. Define Mobile network.

8. Define SSL (Secure Socket Layer).

9. Define Operating system.

10. Define Isolation node.

Part B $(5 \times 5 = 25)$

Answer **all** questions.

11. (a) List and explain the types of security services.

(*Or*)

(b)   Distinguish between Personal computer and Computer network security.

12. (a)   Discus on security in PPP.

(*Or*)

(b)   Explain the various internet security procedures.

13. (a)   Differentiate Transport level and Application level security.

(*Or*)

(b)   Discuss on internet key distribution.

14. (a)   How will you perform the authentication of a call for terminating a mobile station ?

(*Or*)

(b) How will you update a shared secret data ? Explain.

15. (a) Explain the temporal separation.

(*Or*)

(b) Write about penetration of OS.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Briefly explain the security problems in computing.

17. Explain dial in operations with respect to the following :

(a) CHAP.

(b) RADIUS.

18. With the help of block diagram, explain IPSEC architecture.

19. Discuss the various security operations in mobile network.

20. Write a short note on design of secure OS.

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M.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Computer Science

Elective—SOFT COMPUTING

(CBCS—2008 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define ANN.

2. What is feedback network ?

3. What is mean by modaline ?

4. Define RBFN.

5. What is 2/3 Rule ?

6. Give any two reasons of using bidirectional associative memory network.

7. Define Fuzzy logic.

8. What is equivalence relation ?

9. What is meant by reproduction ?

10. List any two applications of genetic algorithm.

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write the applications of soft computing.

(*Or*)

2

(b)   Compare ANN and Human brain.

12. (a)   Write short notes on Adaline.

(*Or*)

(b)   List out the notations employed in the derivation of the BPN learning algorithm.

13. (a)   Write short notes on Hebbian learning rule.

(*Or*)

(b)   Write short notes on the following terms :—

(i) Competition.

(ii) Resonance.

14. (a) Explain the features of the membership functions.

(*Or*)

(b) Explain the fuzzy synthetic evaluation for decision-making.

15. (a) Write short notes on Genetic operators.

(*Or*)

(b) Explain the applications of Genetic algorithm.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about Mc Colloch Pitts Neuron.

17. Discuss in detail about BPN with neat diagram.

18. Explain in detail about the architecture of Hofield networks with neat diagrm.

19. Write in detail about Set theoretic operations with suitable equivations.

20. Explain hybrid genetic algorithm in detailed manner.

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AF-3908