M.C.A.(R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

COMPUTER ORGANIZATION

(Common for MCA (R) / MCA (W/E))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. Mention the difference between Combinational and Sequential circuits.

2. Specify the Demorgan's theorem.

3. Mention the use of multiplexer.

4. Specify the types of main memories.

5. What is instruction format ?

6. Mention and four pseudo instructions.

7. What is memory - mapped I/O.

8. Mention the function of IOP.

9. What is locality of reference ?

10. Specify the difference between Virtual address and Physical address.

Answer **all** questions.

11. (a) Explain any two methods of representing negative numbers.

(*Or*)

(b) Explain the operation of D-flip flop.

12. (a) Explain any five arithmetic micro operations.

(*Or*)

(b) Explain the characteristics of MOS and CMOS.

13. (a) Explain the basic registers in a Computer system.

(Or)

(b) Explain the function of an assembler.

14. (a) Explain the block diagram of an I/O interface unit.

(Or)

(b) Explain any four peripheral devices.

15. (a) Explain the memory hierarchy.

(Or)

(b) Explain the flags in the status register.

RW-6174

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Construct the half and full adder circuits from the truth tables.

17. Design a 3 to 8 line decoder using logic gates.

18. Explain the control unit of a basic computer with a block diagram.

19. Briefly explain any two methods of asynchronous data transfer.

20. Explain any five addressing modes.

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M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

C AND DATA STRUCTURES

(Common for M.C.A. (R) / M.C.A. (W/END)

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What is need for declaration ?

2. What is cast operator ? Give an example.

3. int a [3] [4] [2]. How many elements can be stored and size of the array in bytes ?

4. Define Pointers.

5. Define Linear List.

6. Define Stack.

7. Define Tree.

8. Define Collision.

9. Why is Binary search better than linear search ?

10. What is the principle used in Quick sort ?

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain aggregate data type supported by C.

(*Or*)

(b) Compare if ... elseif ... with switch statement.

12. (a) Explain pointer Arithemetic with suitable example.

(*Or*)

(b) When do you need pointer to printer ? Give an example.

13. (a) How do you merge two linear lists ?

(*Or*)

(b) Explain add and delete operations on queue.

14. (a) What are the ways to represent Binary Tree ? Explain.

(*Or*)

(b) Describe any four Hashing functions.

15. (a) Write a 'C' Program for binary search.

(*Or*)

(b) Explain Insertion sort with an example.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Describe hierarchy of operators in C.

RW-6175

17. Write a C program to find determinant of a given matrix.

18. Explain insertion and deletion operation in single linked list with 'C' code.

19. Explain tree Traversal algorithms with examples.

20. Describe Tree sort with example.

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M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

DATABASE MANAGEMENT SYSTEMS

(Common for MCA (R) MCA (W/END))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What are the different views on data ?

2. What is a Query processor ?

3. Define View.

4. What is the formal definition of Domain Relational Calculus ?

5. Write the basic form of basic SQL query.

6. What are the problems caused by redundancy ?

7. What is Log ? What is its use ?

8. Define Atomicity. Give one example.

9. What is a Cluster ?

10. What is meant by Indexed Sequential Access Method ?

Part - B (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain E - R model with an example.

(*Or*)

RW-6176

(b) Discuss the design issues of Database design.

12. (a) Explain how will you delete and alter a table ? Give example.

(*Or*)

(b) Explain the operations in Tuple relational Calculus.

13. (a) Explain various Aggregate operators with example.

(*Or*)

(b) Explain outer join with example.

14. (a) Write short notes on concurrent execution.

(*Or*)

(b) Explain the Remote Backup systems.

15. (a) Explain Secondary index with example.

(*Or*)

(b) Describe the Dynamic index structure.

Part - C   (3 × 10 = 30)

Answer any **three** questions.

16. Describe the structure and purpose of DBMS.

17. Describe the fundamental and additional operations of Relational Algebra with example.

18. Explain :

    (a) BCNF.

    (b) THIRD Normal Form with example.

19. Explain Lock-Based protocols and its types with example.

20. Describe tree Based Indexing with example.

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M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

DISCRETE MATHEMATICS

Common for MCA (R)/ MCA W/E)

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1. Construct the truth table for $(P \lor Q) \land \neg P$.

2. Show that the equivalence :

    $P \to (Q \to P) \Leftrightarrow \neg P \to (P \to Q)$

3. Show that $A \subseteq B \Leftrightarrow A \cup B = B$.

4. If A is a given finite set, $\rho(A)$ its power set and $\subseteq$ is the inclusion relation on the elements of $\rho(A)$, draw Hasse diagram of $(P(A), \subseteq)$ for $A = \{a, b, c\}$. .

5. Prove that for any commutative monoid $\langle M, * \rangle$, the set of idempotent elements of M forms a submonoid.

6. Show that the set N of natural numbers is a semigroup under the operation $x * y = \max \{x, y\}$. Is it a monoid ?

7. Define unilaterally connected digraph and strongly connected digraph.

8. Write down the adjacency matrix for the graph.
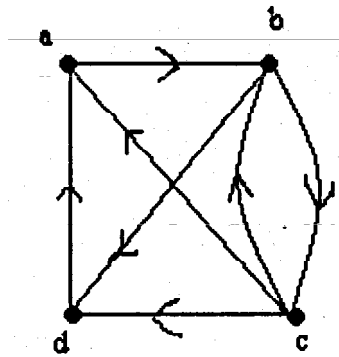
9. A pair of dice is tossed. Find the probability that one of the die is 2 if the sum is 6.

10. The probability that a boy will pass an examination is $\frac{3}{5}$ and that for a girl is $\frac{2}{5}$, what is the probability that at least one of them passes the examination.

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

Answer **all** questions.

11 (a) Obtain the principal disjunctive normal form of $P \rightarrow ((P \rightarrow Q) \wedge \rceil(\rceil Q \vee \rceil P))$.

(*Or*)

(b) Show that $S \vee R$ is tautologically implied by $(P \vee Q) \wedge (P \rightarrow R) \wedge (Q \rightarrow S)$.

RW-6177

12. (a) Let X = {1, 2, . . . , 10} and R be a relation on X where R = $\{(x, y) : x + y = 10\}$. What are the properties of the relation R ?

(Or)

(b) If the compatibility relation on a set $\{x_1, x_2, ..., x_6\}$ is given the matrix.

x_2　1

x_3　1　1

x_4　1　1　1

x_5　0　1　0　0

x_6　0　0　1　0　1

　　x_1　x_2　x_3　x_4　x_5

Draw the graph and find the maximal compatibility blocks of the relation.

13 (a)   If $\langle G,* \rangle$ and $\langle H, \Delta \rangle$ are groups and $g : G \to H$ is a homomorphism, prove that the kernel of g is a normal subgroup.
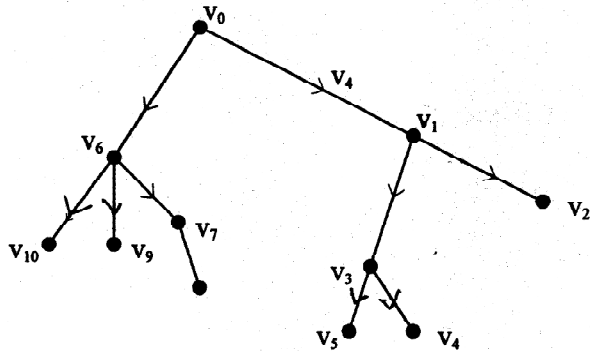
(*Or*)

(b)   Show that the set of all elements a of a group of $\langle G,* \rangle$ such that $a * x = x * a$ for every $x \in G$ is a subgroup of G.

14 (a)   Prove that in a simple digraph, G = (V, E), every node of the digraph lies in exactly one strong component.

(*Or*)

RW-6177

(b) Define Binary tree. Obtain the binary tree corresponding to the tree

15 (a) An event A is known to be independent of the events B, B $\cup$ C and B $\cap$ C. Show that it is also independent of C.

(*Or*)

(b) Let X be a random variable with the following probability distribution.

x	-2	-1	0	1	2	3
P(X = x)	0.1	k	0.2	2k	0.3	3k

Find the value of k, P (X < 2), P (X $\geq$ 2) and P (−2 < X < 2).

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. (a) Show the following using indirect method.

$$S \to \neg Q, S \vee R, \neg R, \neg R \rightleftarrows Q \Rightarrow \neg P$$

(b) Show that the following premises are inconsistent

$$P \to Q, P \to R, Q \to \neg R, P$$

17. (a) Show that $A - (A \cap B) = A - B$.

(b) If $f : X \to Y$ and $g : Y \to Z$ are functions such that both f and g are one-to-one and onto, show that $g \circ f$ is also one-to-one and onto.

18. Prove that every finite group of order n is isomorphic to a permutation group of degree n.

19. Let A be the adjacency matrix of the graph G. Show that the $(i, j)^{\text{th}}$ element of A^n is equal to the number of paths of length n from the ith node to the jth node.

20. State and prove Baye's theorem.

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M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

SOFTWARE ENGINEERING

(Common for M.C.A. (R) / M.C.A. (W/E) / M.Sc. Computer Science (R))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What do you mean by Software Engineering ?

2. Define Software myths.

3. Define feasibility study.

4. What is meant by data model ?

5. List any two characteristics of object oriented design.

6. What do you mean by entity abstraction ?

7. State the need for debugging.

8. What do you mean by function point metrics ?

9. What is risk ?

10. Bring out the importance of software quality.

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Bring out the important software characteristics and explain.

(*Or*)

(b) Write a note on unified process.

12. (a) State the fundamental principles of requirements analysis.

(*Or*)

(b) Briefly explain the requirement validation.

13. (a) Explain modules and modularization criteria for software design.

(*Or*)

(b) Discuss the architectural design principles.

RW-6178

14. (a) Describe the black box testing.

(*Or*)

(b) Explain the various types of tests that the source code must satisfy.

15. (a) Discuss the Reactive *vs* Proactive risk strategies.

(*Or*)

(b) Write notes on ISO 9000 quality standards.

Answer any **three** questions.

16. Explain how waterfall and prototype models of software process can be accommodated in the spiral process model.

17. Describe the various stages in requirements analysis.

18. Discuss the white box testing methods in detail.

19. Explain in detail the formal technical reviews.

20. Write short notes on :

      (a)   Objects and Object classes.   (5)

      (b)   RMMM Plan   (5)

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RW-6178

M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

COMPUTER GRAPHICS

(Common for MCA (R) / MCA (W/E))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. List any four application areas of computer graphics.

2. Give the name of any four input devices.

3. What is translation ?

4. What is clipping ?

5. Define Spline.

6. Give any two properties of Bezier curves.

7. Define 3 D reflection.

8. What is Depth Cueing ?

9. What is meant by Depth Buffer ?

10. Give any two computer animation languages.

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Write short notes on raster - scan display.

(*Or*)

(b) Write the procedure for generating line.

12. (a) Describe the Sutherland - Hodgeman polygon clipping algorithm.

(*Or*)

(b) Write about homogeneous coordinates.

13. (a) Describe the quadratic surface.

(*Or*)

(b) Describe the polygon rendering methods.

14. (a) Describe the shear transformation.

(*Or*)

(b) What is 3D - viewing pipeline ? Explain.

15. (a) Discuss the concepts of 3D animation.

(*Or*)

(b) Describe the backface detection method.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the functions of any two display devices.

RW-6179

17. Explain the Cohen-Sutherland line clipping algorithm.

18. Describe the procedure of 3D clipping.

19. Discuss in detail about 3D view volume and general projection transforms.

20. Write the general computer animation functions and write about raster animation.

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M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

INTERNET AND JAVA PROGRAMMING

(Common for M.C.A. (R) M.C.A. (W/E) / M.Sc. Computer Science (R))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. Define DNS.

2. Define Web Browser.

3. Define Interface.

4. What are the advantages of Abstract classes ?

5. What is the purpose of inif ( ) method in Applet.

6. Define : Servlets.

7. What is meant by client side validation ?

8. What are the tags needed for creating a table ?

9. What is server socket ?

10. Define RMI.

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Describe different ways of connecting internet.

(*Or*)

RW-6180

(b)   What is the purpose of Search Engine ? Explain.

12. (a)   What are features of object oriented programming ?

(*Or*)

(b)   How visibility is implemented in Java Classes ?

13. (a)   Explain the life cycle of an Applet.

(*Or*)

(b)   Illustrate button control in Java AWT with an example.

RW-6180

14. (a) Write a HTML code to display courses offered by your college.

(*Or*)

(b) Describe about loops in Java script.

15. (a) Explain segment of code to connect MS-Access database into Java program.

(*Or*)

(b) Write a Java Program to read contents of a file and change the contents into Upper case.

Answer any **three** questions.

16. Explain about any two services provided by Internet.

17. How Exceptions are handled in Java ? Explain with an example.

18. With a simple servlet program, explain its features.

19. Describe about how events are handled by Java scripts.

20. Write a simple program using TCP/IP sockets.

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M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

RESOURCE MANAGEMENT TECHNIQUES

[Common for M.C.A (R)/M.C.A (W/E)]

(CBCS–2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. Define the terms :

    (a) Objective function.

    (b) Decision variables.

2. What do you meant by unbounded solution ?

3. State the theorem of dual primal relationship.

4. What is an assignment problem ?

5. State the general form of an integer programming problem.

6. What is meant by zero-one programming problem ?

7. Explain the term 'Independent Float'.

8. What is PERT ?

9. What are the types of inventory ?

10. State any two applications of Queueing theory.

Part - B (5 × 5 = 25)

Answer **all** the questions.

11. (a) Find the maximum value of $Z = 5x_1 + 7x_2$ subject to the constraints $x_1 + x_2 \le 4$, $3x_1 + 8x_2 \le 24$, $10x_1 + 7x_2 \le 35$, $x_1, x_2 \ge 0$.

(*Or*)

(b) Write a procedure for Simplex method.

12. (a) Using least cost method find a initial basic feasible solution.

	D$_1$	D$_2$	D$_3$	D$_4$	
O$_1$	1	2	3	4	6
O$_2$	4	3	2	0	8
O$_3$	0	2	2	1	10
	4	6	8	6	

(*Or*)

(b) Solve the following Assignment problem.

	1	2	3	4
A	10	12	19	11
B	5	10	7	8
C	12	14	13	11
D	8	15	11	9

13. (a) Write a procedure of Cutting plane method.

(*Or*)

(b) State the algorithm of Integer Programming Algorithms. (IPL)

14. (a) Construct the project network comprised of activities A to L with the following precedence relationships.

   (i) A,B,C the first activities of the project, can be executed concurrently.

   (ii) A and B precede D.

   (iii) B precedes E, F and H.

   (iv) F and C precede G.

   (v) E and H precedes I and J.

   (vi) C,D, F and J precede K.

   (vii) K precedes L.

   (viii) I, G and L are the terminal activities of the project.

(*Or*)

(b) How does a network analysis help in project work ?

RW-6181

15. (a) State and explain the Queueing system elements.

(*Or*)

(b) A shipbuilding firm uses rivets at a constant rate of 20,000 numbers per year. Ordering costs are Rs. 30 per year. The rivets cost Rs. 1.50 per number. The holding cost of rivets is estimated to be 12.5% of unit cost per year. Determine the EOQ.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Use Simplex method to Maximize $Z = 3x_1 + 2x_2 + 5x_3$.

Subject to the constraints :

$$x_1 + 2x_2 + x_3 \leq 430,$$
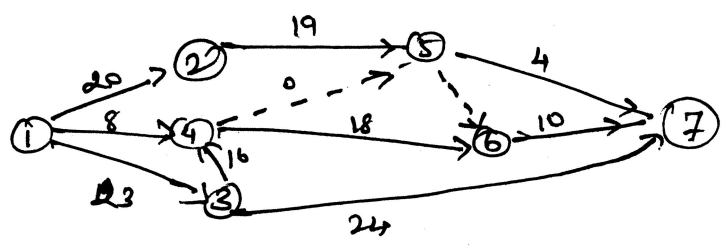$$3x_1 + 2x_3 \leq 460,$$
$$x_1 + 4x_3 \leq 420,$$
$$x_1, x_2, x_3 \geq 0,$$

17. Determine the optimum transportion of schedule for the given below.

		D	E	F	G	H	
	A	5	8	6	6	3	800
	B	4	7	7	6	5	500
From	C	8	4	6	6	4	900
		400	400	500	400	500	

18. Use branch and bound method to solve the firm IPP. Maximize $Z = 2x_1 + 3x_2$ subject to the constraints $5x_1 + 7x_2 \leq 35$, $4x_1 + 9x_2 \leq 36$

$x_1, x_2 \geq 0$ and are integers.

19. Find the critical path of the given network.

20. Customer arrive at a sales counter manned by a single person according to a Poisson process with a mean rate of 20 per hour. The time required to serve a customer has an exponential distribution with mean of 100 seconds. Find the average waiting time of a customer.

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RW-6181

M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

Elective : OBJECT ORIENTED ANALYSIS AND DESIGN

[Common for M.C.A. (R)/M.C.A. (W/E)
M.Sc., Computer Science (R)]

(CBCS–2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What is class ?

2. What is process ?

3. What is object model ?

4. What is pattern ?

5. What is OOA ?

6. Define Association.

7. What is coupling ?

8. Define Cooperative processing.

9. Define Debugging.

10. Define Quality assurance.

Part - B (5 × 5 = 25)

Answer **all** questions.

11. (a) Write a short note on encapsulation and information hiding.

(*Or*)

(b) Explain Classification.

12. (a) Explain Jacobson methodology.

(*Or*)

(b) Explain Frame works.

13. (a) Explain Common class patterns approach.

(*Or*)

(b) Discuss the guidelines for identifying super-sub relationship.

14. (a) Discuss about Design Patterns.

(*Or*)

(b) Write a short note on Attribute types.

RW-6182

15. (a) Discuss the impact of object Orientation and Testing.

(*Or*)

(b) Write a short note on testing strategies.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss OOSD life cycle in detail.

17. Briefly explain UML Diagrams.

18. Discuss use-case model in detail.

19. Explain the procedure to design access layer classes.

20. Explain Usability testing and User satisfaction testing.

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RW-6182

M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

Elective : SOFTWARE PROJECT MANAGEMENT

[Common for M.C.A. (R) M.C.A (W/E)/
M.Sc.Computer Science (R)]

(CBCS–2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What is a project ?

2. State the purpose of estimaton.

3. What is a Project Life Cycle Model ?

4. Write the principles of modern software management.

5. What do you mean by technical perspective ?

6. What are the challenges to be faced during the requirements management phase ?

7. What is work breakdown structure ?

8. Define Critical activity.

9. What is the use of software metrices ?

10. What is software quality ?

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

Answer **all** questions.

11. (a) Write the merits and demerits of Conventional software management.

    (*Or*)

    (b) Why we need Peer inspections ?

12. (a) Write the impact of software engineering on development activity.

    (*Or*)

    (b) Describe the programmatic artifacts.

RW-6183

13. (a) Describe the iteration workflows.

(*Or*)

(b) List out the various activities of management.

14. (a) Describe the guidelines of planning.

(*Or*)

(b) Write about Process Automation.

15. (a) What are the causes of poor quality in software products ?

(*Or*)

(b) Describe the modern process transitions.

Part - C   (3 × 10 = 30)

Answer any **three** questions.

16. Explain the water – fall model.

17. Describe the principles of modern software management.

18. List out the major milestones and expalin them.

19. Explain any one scheduling technique with an example.

20. Describe the different categories of software metrices.

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M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

XML AND WEB SERVICES

(CBCS–2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1.   Define XML Parser.

2.   How XML supports reusable document elements ?

3.   What is the purpose of Name Space ?

4.   Define Schema.

5.   What are the functions of HTTP ?

6. What is SOAP ?

7. What is tModel ?

8. What is ECom ?

9. Define XML Encryption.

10. What are the guidelines for XML document ?

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the role of XML in web technology.

(*Or*)

(b) Discuss the service oriented architecture of XML.

12. (a) Explain the steps to create an XML schema.

(*Or*)

(b) Briefly explain the XML data types.

13. (a) Explain the functions of SOAP.

(*Or*)

(b) Write short notes on Actors.

RW-6184

14. (a) Explain the UDDI architecture.

(*Or*)

(b) Explain the inner workings of ebXML.

15. (a) Explain the structure of XKMS.

(*Or*)

(b) Discuss about XML digital signature.

Part - C   (3 × 10 = 30)

Answer any **three** questions.

16. Explain with a complete XML document how to nest XML elements.

17. Explain :

    (a)   Document type definition.

    (b)   XML infrastructure.

18. Explain SOAP attachment creation and accessing SOAP attachment with an example.

19. Explain J2EE architecture in detail.

20. Describe the XML Security Framework.

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M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

DATA MINING AND WAREHOUSING

[Common for M.C.A (R) /M.C.A (W/E)]

(CBCS–2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. State the importance of Data Mining.

2. What is Data Warehouse ?

3. Differentiate : Data Warehouse and Data Mart.

4. List out some data preprocessing techniques.

5. What is OLAP ?

6. What is outlier ?

7. Hint on the term : KDD.

8. Distinguish : Clustering and Classification.

9. Write the steps of K-Means algorithm.

10. What is Web Mining ?

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the architecture of data warehouse with a neat diagram.

(*Or*)

(b) Distinguish between Data warehousing with Data mining.

      RW-6185

12. (a) Discuss Mining of Multilevel association rules from transactional databases.

(*Or*)

(b) Describe K- Means clustering with example.

13. (a) Describe the working of PAM algorithm.

(*Or*)

(b) Explain Hierarchical method of Clustering.

14. (a) Describe the Bayesian classification with an example.

(*Or*)

(b) Describe any one of the Data Mining Application.

15. (a) Discuss the Application of Data Mining in Business.

(*Or*)

(b) Discuss the various Web Mining Techniques.

Part - C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Diagrammatically illustrate and discuss the architecture of a typical data mining.

17. Describe pattern matching in data mining.

     RW-6185

18. Briefly explain the different kinds of clustering methods with examples in each case.

19. Discuss Partitioning clustering algorithm with example.

20. Discuss in detail the application of Data Mining for financial data analysis.

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M.C.A(R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

MOBILE COMMUNICATIONS

[Common for M.C.A.(R)/M.C.A.(W/E)/M.Sc., Computer Science (R)]

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What are the functions of authentication and encryption in GSM ?

2. Name basic applications for satellite communication.

3. Draw IEEE 802.11 MAC packet structure.

4. What is radio access layer ?

5. Define COA.

6. What is generic routing encapsulation ?

7. Give the advantages of mobile TCP.

8. What is fast retransmitting ?

9. Why does WAP defines its own security layer ?

10. Write the advantages of datagram protocol.

Part - B   (5 × 5 = 25)

11. (a)   Discuss about UMTS system architecture.

(*Or*)

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(b) Compare SDMA, TDMA, CDMA.

12. (a) Write short notes on location management.

(*Or*)

(b) Justify about Bluetooth.

13. (a) Illustrate hierarchical ad-hoc routing.

(*Or*)

(b) What is DHCP and give its usage ?

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14.(a)   Discuss about Snooping TCP.

(*Or*)

(b)   Write a note on transaction oriented TCP.

15.(a)   What is datagram protocol ? Explain.

(*Or*)

(b)   Justify the principles of Transport layer
security.

Part - C   (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about digital video broadcasting.

17. Describe in detail about MAC management of IEEE 802.11.

18. Discuss in detail about tunneling and encapsulation.

19. Explain about mobile TCP.

20. Write an overview about wireless session protocol.

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M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

SOFT COMPUTING

(Common for MCA (R)/ MCA (W/E)/M.Sc., Computer Science (R))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What is monotonicity ?

2. What do you mean by Gaussian MF ?

3. List out GA parameters.

4. What do you mean by random search ?

5. Define Perceptions.

6. What is RBFN ?

7. What do you mean by ANFIS ?

8. Define Adaptive network.

9. Define Inverse kinematics.

10. Why do we need soft computing ?

Answer **all** questions.

11 (a) Explain fuzzy inference systems.

(*Or*)

(b) Explain Mamdani fuzzy models.

12. (a) Explain the applications of genetic algorithms.

(*Or*)

(b) Explain about classical Newton's method.

13   (a)   What do you mean by unsupervised learning ? Explain.

(*Or*)

(b)   Explain Hebbian learning.

14   (a)   Explain the learning methods.

(*Or*)

(b)   Explain coactive neuro fuzzy modeling.

15   (a)   Describe inverse kinematics problems.

(*Or*)

RW-6187

(b) What do you mean by PCR ? Explain with example.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss about fuzzy sets.

17. Discuss about Evolutionary divide and conquer.

18. Discuss Kohonen self organising maps.

19. Explain about fuzzy hybrid learning algorithm.

20. Discuss soft computing for color recipe prediction.

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M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

ADHOC NETWORKS

(Common for MCA (R)/MCA (W/E)/
M.Sc. Computer Science (R))

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. What is the principle used in Radio propagation Mechanisms ?

2. What is an Ad Hoc network ?

3. What is Routing table ?

4. What is the principle used in TORA ?

5. Define Multicart routing.

6. What is Tree based multicasting ?

7. What are functions of Transport layer ?

8. What is meant by key management ?

9. How QOS solutions are classified ?

10. What are different classification of Energy Management schemes ?

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Part - B   (5 × 5 = 25)

Answer **all** questions.

11 (a)   Describe the components of packet radios.

(*Or*)

(b)   Describe about Mobile host movements.

12. (a)   Describe DSDV protocol.

(*Or*)

(b)   Explain about zone routing protocol.

13 (a)   Describe about design issues in multicart routing protocols.

(*Or*)

(b) Explain about QOS associated with multicasting.

14 (a) How TCP is used in Ad Hoc wireless network ?

(*Or*)

(b) Describe design goals of a Transport Layer protocol Ad Hoc wireless networks.

15 (a) Explain about MAC Layer solution.

(*Or*)

(b) Explain about Network Layer solution.

Answer any **three** questions.

16. Explain the Architecture of PRNET.

17. Explain about AODU protocol.

18. Describe about an architecture reference model for multicast routing protocols.

19. Explain about various issues and challenges in security of Adhoc networks.

20. Describe QOS framework for Adhoc wireless networks.

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M.C.A. (R) DEGREE EXAMINATION, NOVEMBER 2010

Computer Applications

OBJECT ORIENTED PROGRAMMING AND C++

[Common for M.C.A. (R)/M.C.A. (W/E)]

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part - A   (10 × 2 = 20)

Answer **all** questions.

1. Define Object and Class.

2. What is the advantage of inheritance ?

3. What is meant by garbage collection ?

4. Define Pointer variable.

5. Define Dynamic binding.

6. What is meant by pure virtual function ?

7. What is the advantage of templates ?

8. Define Stream operators.

9. Define Exception.

10. What is fault tolerant design ?

Part - B (5 × 5 = 25)

Answer **all** the questions

11. (a) What are advantages of C++ program over C program.

(*Or*)

(b) What are the differences between parsing parameter by value and by reference ?

12. (a)   What is friend function ? Give an example.

(*Or*)

(b)   What is self-referential class ? Give an example.

13. (a)   Write a C++ program to overload increment operator.

(*Or*)

(b)   What is hybrid inheritance ? Give an example.

14. (a)   Write a C++ program to create a sequential file.

(*Or*)

RW-6197

(b) Describe about any two stream classes.

15. (a) Write a C++ program to catch arithmetic exception.

(*Or*)

(b) Describe the exception handling constructs with an example.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the features of OOPs with suitable examples.

17. Write a C++ program to illustrate the concept of copy constructor.

18. Write a C++ program to convert objects into basic type.

19. Describe the various manipulators in C++ with examples.

20. Write a C++ program to handle nested exception.

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M.C.A. (R). DEGREE EXAMINATION
NOVEMBER 2010

Computer Applications

OPERATING SYSTEMS

(Common for MCA (R) / MCA (W/E))

(CBCS—2008 onwards)

Time : 3 Hours　　　　　　　　Maximum : 75 Marks

Part - A　　　　(10 × 2 = 20)

Answer **all** questions.

1. Define Operating System.

2. What is the purpose of System Calls ?

3. What is the need for process scheduling ?

4. What is meant by IPC ?

5. What is Critical section ?

6. What is meant by Safe State ?

7. What are the disadvantages of Non Contiguous storage application ?

8. What do you mean by Swapping ?

9. Define File.

10. What are the various file access methods ?

Part - B   (5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the need for Distributed Systems.

(*Or*)

(b) Describe the Operating System services.

12. (a) Explain Process Control Block with a diagram.

(*Or*)

(b) Discuss Real Time Scheduling.

13. (a) Explain how Test-and-Set instruction can be used in Synchronization Hardware.

(*Or*)

(b) Explain Deadlock with Resource allocation graph.

RW-6198

14. (a) Explain Multiple - Partition allocation.

(*Or*)

(b) Explain Multilevel paging with example.

15. (a) Explain various File operations.

(*Or*)

(b) Explain any two protection methods.

Part - C (3 × 10 = 30)

Answer any **three** questions.

16. Explain various system components.

17. A system has following jobs to generate with a processor.

JOB	1	2	3	4	5
DURATION	10	6	2	4	5
ARRIVAL TIME	0	2	3	5	7

    The jobs have arrived in the order 1, 2, 3, 4, 5. Find the waiting time of each job for the following algorithms.

    (a) First Come First Served.

    (b) Round Robin with a time slice of one unit.

18. Explain the following :

    (a) Monitor Solution to the Dining - Philosopher problem.

    (b) Banking algorithm to avoid deadlock.

RW-6198

19. Explain any two page replacement algorithms with example.

20. Describe Directory structure with its types in detail.

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M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

ACCOUNTING AND FINANCIAL MANAGEMENT

(Common for MCA (R) MCA (Week/End)

(CBCS—2008 onwards)

Time : 3 Hours   Maximum : 75 Marks

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

Answer **all** questions.

1. Determine the scope of accounting.

2. What is a trading account ?

3. List the elements of Cost.

4. What are the entries in a Cost sheet ?

5. State the need for budgetary control.

6. Define Sales budget.

7. List the functions of financial management.

8. Define Cost of Capital.

9. What is Capital structure ?

10. What is a dividend policy ?

Answer **all** questions.

11. (a) Trace the position in India regarding the formulation and enforcement of accounting standards.

(*Or*)

(b) From the following balances relating to Rolta India Limited, prepare the Balance Sheet as on 30th June 1993.

Rs.

(i) Equity Capital 36,42,58,510

(ii) Resources and surplus 23,58,26,861

(iii) Debentures 1,03,36,000

(iv) Secured Loans 21,27,57,441

		Rs.
(v)	Fixed assets	37,07,93,048
(vi)	Investments	5,94,80,459
(vii)	Inventories	20,78,28,095
(viii)	Sundry debtors	10,21,66,468
(ix)	Cash and bank balances	1,49,87,264
(x)	Other current assets	57,75,568
(xi)	Loans and advances	12,49,59,370
(xii)	Current liabilities	4,71,71,358
(xiii)	Provisions	4,64,19,410
(xiv)	Miscellaneous expenditure	3,07,79,308

The Balance Sheet may be prepared in Account form and Report form.

RW-6199

12. (a) Discuss the advantages and applications of Cost Volume profit analysis.

(*Or*)

(b) "Marginal Costing is the administrative tool for the management to achieve higher profits and efficient operations"—Elaborate.

13. (a) "Flexibility in a budget is an aid to Co-ordination, while the Budgetary Control is an instrument of Co-ordination".—Elaborate.

(*Or*)

(b) Explain a principal budget factor. Give a list of such factors.

14. (a) Ms. Padmini wants to invest Rs. 25,000 in either of the two plans available. Plan A offers 14 % rate of interest calculated semi-annually for a period of 3 years while plan B offers to double the amount invested by the end of year 5. Calculate the effective annual rates of interest implicit in plans A and B.

(*Or*)

(b) Explain the factors affecting cost of capital.

15. (a) Discuss the estimation of working capital requirements.

(*Or*)

(b) Explain the factors affecting Capital structure.

RW-6199

Answer any **three** questions.

16. A company is manufacturing three products A, B, C. The costs of their manufacture are as follows.

Details	Products		
	A	B	C
	Rs.	Rs.	Rs.
Direct materials per unit	3	4	5
Direct labour per unit	2	3	4
Selling price per unit	10	15	20
Output (units)	1000	1000	1000

The total overheads are Rs. 6,000 out of which Rs. 3,000 are fixed and rest are variable. Prepare a statement of Cost and Profit according to Marginal Costing technique.

17. X Ltd. reports the following results for one year

	Rs.
Sales	2,00,000
Variable Costs	1,20,000
Fixed Costs	50,000
Net profits	30,000

Draw up a profit volume graph.

18. Explain how Cash savings in terms of after tax are to be affected by 'Depreciation Tax shield'.

19. Explain any two Capital budgeting techniques under risk.

20. Compare and contrast Financial accounting and Management accounting.

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RW-6199

M.C.A. (R) DEGREE EXAMINATION NOVEMBER 2010

Computer Applications

COMPILER DESIGN

(Common for MCA (R) / MCA (W/E))

(CBCS—2008 onwards)

Time : 3 Hours　　　　　　　　Maximum : 75 Marks

Part - A　　　　(10 × 2 = 20)

Answer **all** questions.

1. Give the purpose of a Compiler.

2. Define Grammar.

3. What is meant by parsing ?

4. When the grammar is said to be ambiguous ?

5. Define Source program.

6. Define :

      (a)   Root node of a tree.

      (b)   Leaf node of a tree.

7. Define Array.

8. How to declare strings ?

9. What is meant by a variable ?

10. Give the expansion for DAG.

           RW-6200

Answer **all** questions.

11. (a) How regular expressions are created ?

(*Or*)

(b) Explain the concept of Boot strapping.

12. (a) What is meant by Top Down parsing ? Explain.

(*Or*)

(b) How Error Recovery is done is parsing ?

13. (a) Give the necessity of Type Checker.

(*Or*)

(b) With an example, discuss on abstract syntax tree.

14. (a) Mention the purpose of Symbol tables.

(*Or*)

(b) Give the scope of optimization.

15. (a) What is meant by global optimization ? Explain.

(*Or*)

RW-6200

(b)   Explain the importance of flow graphs.

Part - C   (3 × 10 = 30)

Answer any **three** questions.

16.   With examples, discuss on Regular Grammar.

17.   Explain the concept of LALR parsing.

18.   Discuss on Syntax directed translation.

19.   Briefly explain the following :

   (a)   Local Optimization.

   (b)   Loop optimization.

20.   Describe the concept of Code propagation.

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