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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION - AUGUST, 2021

FIRST SEMESTER

Paper MCA 105A: ACCOUNTING AND FINANCIAL MANAGEMENT

(Under C.B.C.S Revised Regulations w.e.f. 2020-2021)

(Common Paper to University and all Affiliated colleges)

Time : 3 Hours **Max. Marks : 70**

PART - A

(Compulsory)

Answer any **FIVE** of the following Questions. Each Question carries **2** marks. **(5×2=10)**

1. a) What is accounting equation?
   b) State the importance of Ledger.
   c) Define the concept of cost accounting.
   d) Cost Centre
   e) Quick assets
   f) Solvency ratios
   g) Reorder quantity
   h) Permanent working capital.
   i) Budgetary control
   j) Forecast

PART - B

Answer any **ONE** full question from each Unit. Each Question carries **12** marks **(5×12=60)**

UNIT - I

2. i) What is financial accounting? Write a note on the importance of Financial Accounting.
   ii) How many branches are there in accounting? Discuss.

(OR)

3. i) Explain the 'Accounting Cycle'.
   ii) What are the differences between the Journal and Ledger?

UNIT - II

4. i) Describe the objectives of cost accounting.

   ii) What are the elements of cost? Explain with examples.

(OR)

5. i) What are the advantages of cost accounting?

   ii) Explain cost-volume profit analysis.

UNIT - III

6. i) What is ratio analysis? Explain the significance of ratio analysis.

   ii) From the following details, prepare statement of Proprietor's Fund:

   a) Stock velocity 6 times

   b) Debtors's velocity 2 months

   c) Capital turnover 2 times

   d) Creditor's velocity 73 days

   e) Fixed assets turnover 4 times

   f) Gross profit Ratio 20 %

   Gross profit was Rs.60,000. Reserves and surplus amounted to Rs.20,000. Closing Stock was Rs.5,000 in excess of opening stock.

(OR)

7. i) How do you classify ratios? Explain with examples.

   ii) Current ratio = 2.5; quick ratio = 1.5; operating capital = Rs.30,000, Calculate the stock value.

UNIT - IV

8. i) Enumerate the cardinal principles of working capital management.

   ii) What is weighted average method?

(OR)

9. i) Discuss the technique of forecasting working capital requirements of a firm.

   ii) Are the gross and net concepts of working capital exclusive? Explain.

UNIT - V

10. i) What is flexible budget? Explain.

ii) Distinguish between budgeting and budgetary control.

(OR)

11. i) State the essentials of a good budgetary control system.

ii) Explain the latest developments in the field of budgeting and budgetary control.

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION, AUGUST - 2021

FIRST SEMESTER

Paper - MCA 104: OPERATING SYSTEMS

(Under C.B.C.S. Revised Regulations w.e.f. 2020-2021)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours **Max. Marks : 70**

PART - A

(Compulsory)

Answer any **FIVE** of the following Questions. Each Question carries **2** marks. **(5×2=10)**

1. a) Explain Computer System Operation.
   b) What are Virtual Machines? Give a brief explanation.
   c) Write a brief note on Scheduling criteria to compare CPU scheduling algorithms.
   d) How to recover from a Deadlock? Explain.
   e) Define Swapping and Thrashing.
   f) What is meant by File recovery?
   g) Write a brief note on I/O Hardware.
   h) List out the steps in DMA transfer.
   i) What are the Advantages of Linux systems?
   j) What is meant by User Authentication? What is its importance?

PART - B

Answer any **ONE** full question from **each** Unit. Each Question carries **12** marks. **(5×12=60)**

UNIT - I

2. Explain Operating System Components and Services in detail.

(OR)

3. i) Describe the Operations on Processes.
   ii) Briefly explain about Multithreading Models.

UNIT - II

4. Describe any two of CPU Scheduling algorithms in detail with example.

(OR)

5. What is a Critical Section Problem? Explain a Dining Philosophers Problem. Write a Monitor solution to the Dining Philosopher Problem with necessary explanation.

UNIT - III

6. What is meant by Virtual Memory? Explain in detail about Demand Paging and the steps in handling a Page fault in Demand Paging.

(OR)

7. Elaborate on various File Access Methods with advantages and disadvantages of each.

UNIT - IV

8. Describe in detail about Kernal I/O substem.

(OR)

9. Explain about Disk Management with necessary illustrations.

UNIT - V

10. Elaborate on Program Threats and System Threats.

(OR)

11. Describe about File Systems in Linux environment.

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION,
NOVEMBER/DECEMBER- 2017

FIRST SEMESTER

Paper MCA - 104 : COMPUTER ORGANIZATION

(Under CBCS Revised New Regulations w.e.f. 2016 - 2017)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours Max. Marks : 80

Part - A (Compulsory)

Answer any **Five** of the following Questions. Each question carries **4** marks. **(5×4=20)**

1. a. With a neat block diagram discuss the basic operational concepts of a computer.
   b. Describe all the possible ways registers can transfer information.
   c. Discuss the encoding of machine instructions.
   d. With an example explain Auto - decrement addressing mode.
   e. Illustrate the I/O operations with a neat diagram.
   f. Write a short note on Input interface circuit.
   g. With an example explain Floating point operations.
   h. List the different systems used to represent a Signed number and give one example for each.
   i. Explain the steps involved in execution of a complete instruction.
   j. With a neat diagram explain Hardwired control unit implementation.

Part - B

Answer any **one** full question from each Unit. Each Question carries **12** marks.

(5×12=60)

Unit - I

2. Elaborate on Multi processors and Multi computers.

OR

3. Illustrate a diagrammatic approach is presented for the Synthesis of Multilevel NAND networks realizing combinational logic expressions.

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION-
FEBRUARY - 2017
FIRST SEMESTER
MCA - 104 : COMPUTER ORGANISATION
(Under C.B.C.S. Revised New Regulations w.e.f. 2016-2017)
(Common paper to University and all Affiliated colleges)

Time : 3 Hours Max. Marks : 80

PART - A
(Compulsory)

Answer any **FIVE** questions. Each question carries **4** marks. **(5×4=20)**

1. a) Explain Byte addressability, Big-endian and Little-endian assignment.
   b) Explain how to measure the performance of a computer.
   c) Define Addressing mode. Explain in brief any four addressing modes in detail.
   d) Explain the various rotate instructions.
   e) With an example illustrate the concept of Interrupts.
   f) Explain the approaches of Bus arbitration.
   g) Discuss the internal organization of Memory
   h) Brief upon the different types of Memory
   i) Write short notes on Pipelining
   j) With a block diagram explain how printer is interfaced to a processor.

PART - B

Answer any **ONE** Full question, from each unit. Each question carries **12** marks.
(5 × 12 = 60)

Unit - I

2. Explain in detail about Adders.

OR

3. Explain in detail the significance of PLDs.

Unit - II

4. Explain with relevant examples Branching, Sub routine calls and Return Operations.

OR

5. Write a note on number representation, addition /subtraction in the 2's complement system.

Unit - III

6. With neat sketches explain various methods for handling multiple interrupt requests.

OR

7. Briefly explain the operations of Synchronous and Asynchronous bus.

Unit - IV

8. Explain the synchronous DRAM with the aid of a block diagram.

OR

9. State Booth's algorithm. Perform signed multiplication of numbers (-12) and (-11) using Booth's algorithm.

Unit - V

10. Explain in detail Micro programmed control unit implementation.

OR

11. Briefly explain the operation of a Superscalar processor.

Unit - II

4. Write ALP program to copy 'N' numbers from array 'A' to array 'B' using indirect addresses .(Assume A and B are the starting memory location of array).

OR

5. Explain with an example Program Controlled I/O operation.

Unit - III

6. Explain the terms : i) Interrupt Service routine ii) Interrupt Latency iii) Interrupt disabling.

OR

7. With an example explain Daisy chaining technique.

Unit - IV

8. Explain in detail Direct Memory mapping technique.

OR

9. What is Virtual Memory? With a diagram explain how virtual memory address is translated.

Unit - V

10. Explain in detail Ultra Sparc-II processor architecture with relevant diagrams.

OR

11. Briefly explain Pipeline Hazards.

Unit - V

10. a) Write an applet that contains three buttons OK, CANCEL and HELP and one text field. If OK is pressed shown on the status bar "OK is pressed" and the text field should turn red. When CANCEL is pressed shown on the status bar "CANCEL is pressed" and test field should turn green. When HELP is pressed shown on the status bar "HELP is pressed" and the text field should turn yellow. **(6)**

b) Explain Applet life cycle with demo program. **(6)**

OR

11. Explain Event Handling in Java and describe methods of mouse event and key event. **(12)**

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION, FEBRUARY- 2017

FIRST SEMESTER

PAPER MCA - 101: DISCRETE MATHEMATICAL STRUCTURES

(Under CBCS Revised New Regulations w.e.f. 2016-2017)

(Common paper to University and all Affiliated Colleges)

Time : 3 Hours Max. Marks : 80

PART-A

(Compulsory)

Answer any five of the following Questions. Each question carries 4 marks.

(5×4=20)

1. a) Define Cyclic group.

   b) Define sub graphs with example.

   c) State the generalized pigeon hole principle. Show that, among 100 people, at least 9 of them were born in the same month.

   d) Define modular lattice with example.

   e) Prove that the inverse of an element 'a' in a group G is unique.

   f) Define Bipartite Graph with example.

   g) List some applications of shortest path problems.

   h) Discuss Max-flow min-cut theorem.

   i) Show that the propositions $p \rightarrow q$ *and* $\neg p \vee q$ are logically equivalent.

   j) Define Universal quantification and Existential quantification.

PART -B

Answer any one full Question from each unit. Each question carries 12 marks.
(5×12=60)

Unit - I

2. State and prove Lagranges Theorem. **(12)**

OR

3. Show that $(N, \leq)$ is a partially ordered set where N is set of all positive integers and $\leq$ is defined by $m \leq n$ iff $n - m$ is a non-negative integer. **(12)**

Unit - II

4. i) Prove that every chain is a distributive lattice. **(6)**

   ii) Solve the recurrence relation $a(n) = a(n-1) + 2(n-1)$ with boundary condition $a(1) = 2$ **(6)**

OR

5. i) Prove that a graph with no vertices of odd degree is Eulerian and also state the necessary and sufficient conditions for the existence of an Eulerian path in a connected graph. **(6)**

   ii) Explain travelling salesman problem. **(6)**

Unit - III

6. i) Explain any two types of matrix representation of graphs. **(6)**

   ii) Prove that a graph is a tree iff it is minimally connected. **(6)**

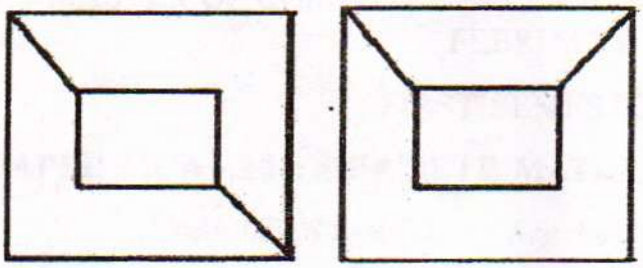
OR

7. i) Prove that a tree with n vertices has $n - 1$ edges. **(6)**

   ii) State the applications of trees. **(6)**

Unit - IV

8. Check whether given two graphs G and G' are Isomorphic or not. **(12)**



OR

9. Write Ford-Fulkerson algorithm for maximum flow in a Network. **(12)**

Unit - V

10. Construct truth table for the formula. $(P \wedge Q) \vee (P \wedge \neg Q) \vee (\neg P \wedge Q) \vee (\neg P \wedge \neg Q)$ **(12)**

OR

11. Show that $(x)(P(x) \vee Q(x) \Rightarrow (x)P(x) \vee (\exists x)Q(x)$ by indirect method of proof. **(12)**

MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION, NOVEMBER/DECEMBER- 2017

FIRST SEMESTER

Paper MCA - 103 : OBJECT ORIENTED PROGRAMMING WITH JAVA

(Under CBCS Revised New Regulations w.e.f. 2016 - 2017)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours Max. Marks : 80

Part - A (Compulsory)

Answer any **Five** of the following Questions. Each question carries **4** marks. **(5×4=20)**

1. a. Discuss about the Java's Byte code.
   b. Give the relational operators in Java with examples.
   c. Explain the various access specifiers.
   d. What is the use of throw and throws keyword in Java.
   e. Explain Thread Priorities.
   f. List some String Buffer function with example.
   g. Write a note on Type Wrappers in Java.
   h. What is a random access file? How is it different from a sequential file?
   i. How will you pass information to applets.
   j. Give the Java Swing Framework for designing Windows Applications.

Part - B

Answer any **one** full question from each Unit. Each Question carries **12** marks. **(5×12=60)**

Unit - I

2. a) List various features of Java? Also explain any two features with example. **(6)**
   b) Explain the OOP's concepts. **(6)**

OR

3. a) Explain the looping statements available in Java. **(6)**

   b) Differentiate Method Overloading and Method Overriding with example. **(6)**

Unit - II

4. Discuss in detail about exception handling in Java with examples. **(12)**

OR

5. Write a program that illustrates interface inheritance. Interface P is extended by P1 and P2. Interface P12 inherits from both P1 and P2. Each interface declared one constant and one method. Class Q implements P12. Instantiate Q and invoke each of its methods. Each method displays one of the constants. **(12)**

Unit - III

6. Explain Thread Life Cycle in detail. Write a code to create a thread in Java. **(12)**

OR

7. Explain any three string handling methods in detail. **(12)**

Unit - IV

8. Write a note on Utility classes :

   i) String Tokenizer

   ii) Bit set

   iii) Date and calendar **(12)**

OR

9. Write a program using Buffered Input Stream, File Input Stream, Buffered Output Stream, File Output Stream to copy content of one File 1. txt into another fiel File2.txt. **(12)**

try byte write

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION, NOVEMBER/DECEMBER- 2017

FIRST SEMESTER

Paper MCA - 101 : DISCRETE MATHEMATICAL STRUCTURES

(Under CBCS Revised New Regulations w.e.f. 2016 - 2017)

(Common Paper to University and all Affiliated Colleges)

Time : 3 : Hours Max. Marks : 80

Part - A (Compulsory)

Answer any **Five** of the following Questions. Each question carries **4** marks. **(5×4=20)**

1. a) Define Normal subgroup. Give an example.

b) Show that "A cyclic group must be Abelian".

c) Define Poset? What is meant by minterm and maxterm in a poset?

d) Draw the Hasse diagram of the set of all divisors of 16.

e) Define isomorphism of graphs with examples.

f) State the properties of trees.

g) Define Rooted binary tree, spanning tree, weighted graph.

h) Write PRIM' s algorithm.

i) Distinguish tautology and contradiction.

j) Show that $(P \wedge Q) \rightarrow (P \vee Q)$ is a tautology without using the truth table.

Part - B

Answer any **one** full question from each Unit. Each Question carries **12** marks.

(5×12=60)

Unit - I

2. a) Give example for one-one onto, one-one into and many-one into function. **(6)**

b) Show that the set N of natural numbers is a semigroup under the operation x*y = max{x,y}. Is it a Monoid? **(6)**

OR

3. a) Define a group. Prove that the addition modulo 5 is a group. **(6)**

b) Prove that a subgroup of a cyclic group is cyclic. **(6)**

Unit - II

4. a) Define Posets Give an example. **(6)**

   b) Explain Counting Techniques. **(6)**

OR

5. a) Show that isomorphism of simple graphs is an equivalence relation. **(6)**

   b) Solve the recurrence relation $a_{n+1} - 8a_n + 16a_{n-1} = 4^n$; $n \leq 1$; $a_0=1$, $a_1=8$ using generating functions. **(6)**

Unit - III

6. Prove that, a given connected graph g is an Euler graph if and only if all vertices of G are of even degree. **(12)**

OR

7. Explain the applications of trees in detail. **(12)**

Unit - IV

8. Explain an algorithm for finding Minimal Spanning Tree. **(12)**

OR

9. Explain Ford - Fulkerson algorithm for maximum flow **(12)**

Unit - V

10. a) Show that $S \vee R$ is tautologically implied by $(P \vee Q) \wedge (P \rightarrow R) \wedge (Q \rightarrow S)$. **(6)**

    b) Prove the implication by using truth table :

    $(P \rightarrow (q \rightarrow s)) \wedge (\neg r \vee p) \wedge q \Rightarrow r \rightarrow s$. **(6)**

OR

11. Show that $(x)(P(x) \rightarrow Q(x)) \wedge (x)(Q(x)) \rightarrow R(x) \Rightarrow (x)(P(x) \rightarrow R(x))$. **(12)**

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PART - B

Answer any **One** full question from each Unit. Each Question carries **12** marks

(5×12=60 Marks)

Unit - I

2. i) Discuss five types of Literals in Java **(6)**

   ii) Explain the statements while, do-while with syntax and example. **(6)**

OR

3. Differentiate between constructor and method of class. Define method overloading and its purpose. Write a program to demonstrate the constructor overloading. **(12)**

UNIT - II

4. Discuss about how exceptions are handled in Java and also write a Java program that raises an exception named Insufficient Funds Exception whenever a customer of a bank tries to withdraw an amount higher than the available amount. **(12)**

OR

5. What is package? List various built in package used in Java. **(12)**

UNIT - III

6. Explain single level and multiple inheritance in Java. Write a program to demonstrate combination of both types of inheritance. **(12)**

OR

7. Describe how Multithreading can be achieved in Java with a neat example. **(12)**

UNIT - IV

8. What is frame? How to Create window in an applet? **(12)**

OR

9. What are I/O streams? Explain them with illustrations. **(12)**

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION - FEBRUARY - 2017

First Semester

Paper MCA - 103 : OBJECT ORIENTED PROGRAMMING WITH JAVA

(Under CBCS Revised New Regulations w.e.f. 2016-2017)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours Max. Marks :80

PART - A (Compulsory)

Answer any **Five** of the following Questions. Each question carries **4** marks

(5×4=20)

1. a) List out any two differences between C++ and Java.

   b) What is method overriding? Give example.

   c) State any five methods in Thread Class.

   d) What are exception subclasses?

   e) Explain why abstract classes are needed.

   f) Write a note on string tokenizer.

   g) Define interface with an example.

   h) Give the methods in Java Output Stream abstract class.

   i) Explain how AWT helps GUI development.

   j) Design an applet to display your institute name.

UNIT - V

10. Write note on **(12)**

i) Applet Class

ii) Applet Display methods

iii) Passing information to Applets

OR

11. Explain event handling and different event types of Java. **(12)**

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION, AUGUST, 2021

FIRST SEMESTER

Paper - MCA102 : OBJECT ORIENTED PROGRAMMING WITH JAVA

(Under C.B.C.S Revised Regulations w.e.f. 2020 - 2021)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours **Max. Marks : 70**

PART - A

(Compulsory)

Answer any **FIVE** of the following Questions. Each Question carries **2** marks. **(5×2=10)**

1. a) Why java is important to internet. Explain?

   b) What are the uses of the keyword super in Java?

   c) What is meant by checked exceptions? Explain with example.

   d) Which method is used to obtain a thread status? Give an example.

   e) Write a program to accept number from user and convert into binary by using wrapper class methods.

   f) Discuss about Bit set class in detail.

   g) Give the AWT hierarchy and list out event sources.

   h) Why do applet classes need to be declared as public? Explain.

   i) Discuss about Instance Methods in detail.

   j) Write about Socket programming in details.

PART - B

Answer any **ONE** full question from each Unit. Each Question carries **12** marks. **(5×12=60)**

UNIT - I

2. i) Explain about the OOP concepts:

   i) Classes and objects.

   ii) Inheritance

   ii) Explain the data types available in Java.

(OR)

3 i) What is meant by constructors? Explain overloading of constructors.

   ii) Write about Final with inheritance with an example program.

UNIT - II

4. i) Discuss the role of packages in Java and how packages are used in Java with an.

   ii) What is an exception? Explain various types of exceptions.

(OR)

5. i) Write a java program that creates a thread by extending the thread class.

   ii) Define multithreading. Explain with an example of an application that needs multithreading.

UNIT - III

6. i) Write about Boolean class in detail by explaining with an appropriate example.

   ii) Write about Stack and write a java program to implement Stack using Arrays.

(OR)

7. i) Write a short note on byte stream and character stream.

   ii) Describe the various methods defined by input stream and output stream.

UNIT - IV

8. i) Explain about the ways to create an applet with example.

   ii) How to pass parameters to an applet? Explain with an example.

(OR)

9. i) Write java program to create main menu and drawing rectangle.

   ii) Write a short note on delegation event model.

UNIT - V

10. i) Write about Internet Address class and methods with an example program.

    ii) With an example program briefly explain about Client-Server interconnection in detail.

(OR)

11. i) Explain the basic steps in developing JDBC applications.

    ii) Explain about the procedure of preparing SQL statements in detail.
