5022-14-862-009

Code No. 1711

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB' 2015

DISCRETE MATHEMATICS

PAPER – I

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. What is Venn diagram? Draw Venn diagram for $A \leq B$.
2. Write about well-ordering principle of Integers.
3. Discuss about De-arrangements.
4. Discuss about cyclic groups.
5. Discuss properties of trees.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Prove the following:
   i) $P \vee \neg(p \wedge q)$ is tautology
   ii) $\neg(p \wedge q) \equiv \neg P \vee \neg q$
   iii) $\neg (p \vee q) \vee (\neg p \wedge q) \equiv \neg p$

   (OR)

   b) Explain Logic gates with truth tables.
7. a) Discuss fundamental theorem of arithmetic.

   (OR)

   b) What is Pigeonhole Principle? Explain with example.
8. a) How many integral solutions are there of $x_1+x_2+x_3+x_4=20$ if $2 \leq x_1 \leq 6$, $3 \leq x_2 \leq 7$, $5 \leq x_3 \leq 8$ and $2 \leq x_4 \leq 9$.

   (OR)

   b) Discuss about Exponential generating functions.
9. a) Discuss about second-order linear homogeneous recurrence relations with constant co-efficients.

   (OR)

   b) What is Group? Discuss its elementary properties.
10. a) What is graph? Discuss about graph coloring.

    (OR)

    b) What is tree? Discuss different methods of finding Spanning trees?

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Code No. 1711

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, JAN-2016

DISCRETE MATHEMATICS

PAPER – I

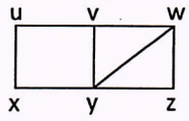
Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Define tautology and contradiction give examples to each.
2. Explain partial order relations.
3. Define summation operator.
4. Define Group with example.
5. Find the chromatic number of the following graph.



Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) i) Prove that (A-(A-B)) = A ∩ B.
   ii) Differentiate conjuctive normal form and disjunctive normal form.

   (OR)

   b) Explain counting principles and solve the following "In a state that has jint under 100 million cars registered. The department of Motor vehicles is considering a new requirement that license plates must courist of 3 letters (A to Z) followed by 4 digits (0 to 9). Could all the cars registered in the state be accommodated by this system.
7. a) Explain Euclid's Algorithm. Find ged (630, 96) and write it in the form 630x +96y for x,y Σ z.

   (OR)

   b) Let (L, ≤) be a Laltice. Let $*$ and $\oplus$ denote operations of meet and join respectively. For any a,b,c and prove that
   i) $a \oplus(b * c) \leq (a \ominus b) * (a \oplus c)$
   ii) $a * (b \oplus c) \geq (a * b) \oplus (a * c)$
8. a) Find the number of integral solutions to $x_1 + x_2 + x_3 + x_4 + x_5 \leq 20$ where $x_1 \geq -3, x_2 \geq 0, x_3 \geq 4, x_4 \geq 2, x_5 \geq 2.$

   (OR)

   b) Write Basic inclusion and exclusion principle. How many of the integers from 1 to 1000 are relatively prime to 1000?

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Code No. 1711

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, DEC- 2017

DISCRETE MATHEMATICS

PAPER – I

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Write Basic Connectivities and their truth tables.
2. Explain Recursive definitions.
3. Write about Derangements.
4. Define Algebraic Structures with examples.
5. Define Trees? Explain their properties.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain the different logic gates and discuss about Don't Care Condition.

(OR)

b) i) Discuss about Venn Diagrams.

ii) Prove that (A-(A-B)) = A∩B.

7. a) i) Explain Well ordering principle theorems.

ii) Discuss about Pigeonhole Principle.

(OR)

b) i) Explain Partial order relations with examples.

ii) Discuss about Euclidean Algorithm.

8. a) Write Basic inclusion and exclusion principle. How many of the integers from 1 to 1000 are relatively prime to 1000.

(OR)

b) i) Explain Summation Operation.

ii) Discuss about Rooks Polynomial.

9. a) Define Groups with examples? And explain the elementary properties of groups.

(OR)

b) Explain First-order linear recurrence relation.

10.a) What are Planar graphs? Explain Hamiltonian Cycle and Hamiltonian Paths.

(OR)

b) Define Spanning Trees? How to find minimal spanning tree explain with an examples.

--oOo--

Code No. 1711

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB- 2020

DISCRETE MATHEMATICS

PAPER – I

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Construct the truth table for $[(p \rightarrow (q\ V\ r)) \wedge (\sim q)] \rightarrow (p \rightarrow r)$.
2. With an example define equivalence relations.
3. Explain derangements.
4. Define Homomorphism and isomorphism in groups.
5. Discuss graph coloring.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Use Venn diagrams to check the validity of the arguments
   i) Some Scientists are not engineers.
   ii) Some astronauts are not engineers.
   iii) Hence, Some scientists are not astronauts.

   (OR)

   b) Draw the logic circuit for the given Boolean function $F = xy + yz + zx$

7. a) State and Prove Pegion-hole principle.

   (OR)

   b) Draw the poset diagrams for the following.
   i) $[p\{a, b, c\}; \leq]$
   ii) $[D_{12}; /]$
   iii) $[\{1,2,3,4,6,9\}; /]$

8. a) In a survey of students at Florida State University the following information was obtained: 260 were taking statistics course, 208 were taking mathematics course, 160 were taking computer science course, 76 were taking statistics and mathematics, 48 were taking statistics and computer science, 62 were taking mathematics and computer science, 30 were taking all the 3 kinds of courses, and 150 were taking none of the 3 courses. Find
   i) How many students were surveyed?
   ii) How many were taking computer science course but not taking a course in mathematics or in statistics.

   (OR)

P.T.O

9. a) Explain about recurrence relations with constant coefficients.

(OR)

b) Let $A = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$

i) Determine A^2, A^3, and A^4.

ii) Verify that $\{A, A^2, A^3, A^4\}$ is an abelian group under ordinary matrix multiplication.

iii) Prove that the group in part (b) is isomorphic to the group shown below.

.	1	-1	i	-i
1	1	-1	i	-i
-1	-1	1	-i	i
i	i	-i	-1	1
-i	-i	i	1	-1

10.a) Write an algorithm for Kruskal minimal spanning trees.

(OR)

b) What is the length of a longest path in each of the following graphs?

i) $K_{1,4}$ ii) $K_{3,7}$ iii) $K_{7,12}$

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5022-14-862-009.

Code No. 1715

FACULTY OF SCIENCE
M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB' 2015
MODERN ECONOMIC ANALYSIS

PAPER – V

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Managerial Issues
2. Cross demand
3. Iso-product curve
4. Indicative planning
5. IFCI

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What is managerial economics? Explain the it's salient features and significance.

(OR)

b) Explain the role of managerial economics for decision making in business.

7. a) State the law of demand with suitable table and diagram, Explain its exceptions.

(OR)

b) Explain the following concepts
i) Arc Elasticity
ii) Point Elasticity

8. a) Explain the law of diminishing returns.

(OR)

b) How is price determined under monopolistic competition.

9. a) Explain the various concepts of national income.

(OR)

b) Discuss the Eleventh Plan development strategy in India.

10. a) Explain the function of Reserve Bank of India.

(OR)

b) Discuss the role of lending financial institutions in industrial Finance.

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Code No. 1715

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, JAN-2016

MODERN ECONOMIC ANALYSIS

PAPER – V

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Decision making.
2. Demand function.
3. Fixed and variable cost.
4. Net National Product.
5. Capital market.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain the Nature and scope of Managerial Economics.

(OR)

b) What are the fundamental concepts of managerial economics?

7. a) Explain types of demand and its determinants.

(OR)

b) Explain the measuring the demand elasticities.

8. a) Explain the law of return to scale.

(OR)

b) How price is determined under monopoly market?

9. a) Analyse the methods of measuring National Income.

(OR)

b) Explain the salient features of Indian five year plans.

10. a) Discuss the role and functions of lending financial institutions.

(OR)

b) Analyse the role Reserve Bank of India in strengthing the financial system.

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5174-17-862-019

Code No. 1715

FACULTY OF SCIENCE
M.C.A. I – SEMESTER REGULAR EXAMINATIONS, DEC-2017
MODERN ECONOMIC ANALYSIS

PAPER – V

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. The Scope of Managerial Economics.
2. Substitutes and Complements.
3. Opportunity Cost.
4. Per Capital Income.
5. IDBI.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What is Managerial Economics? Discuss the Nature and Scope of the Managerial Economics.

(OR)

b) Discuss the principles of Managerial Economics which help in effective Managerial Decision Making.

7. a) Define Demand and describe its Determinants with suitable examples.

(OR)

b) Explain different methods of Measuring Elasticity of Demand.

8. a) What is Production? Explain Cobb Douglas Production Function?

(OR)

b) Explain concepts of returns to scale and distinguish among increasing, constant and decreasing returns to scale.

9. a) Critically evaluate the different Methods of National Income Accounting in India.

(OR)

b) Explain salient features and strategies of Twelfth Five Year Plan in India.

10. a) Explain functions of RBI and its role played in the context of recent Demonetization.

(OR)

b) Discuss the Financial Institutions role in Industrial Development in India.

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Code No. 1715

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB-2019

MODERN ECONOMIC ANALYSIS

PAPER – V

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Does Managerial Economics is helping only Decision Making?
2. Geffen Paradox.
3. Producer's Equilibrium.
4. GNP.
5. RBI.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What are the main study areas and concepts of Managerial Economics? Explain.

(OR)

b) Explain various definitions and important features of Managerial Economics.

7. a) Explain the Law of Demand. What are its Assumptions and Exceptions?

(OR)

b) What do you mean by Elasticity of Demand, Describe different types of elasticity of demand?

8. a) What is meant by Production Function? What are its Managerial uses?

(OR)

b) Explain the Law of Variable Proportions.

9. a) Define National Income. How do you measure National Income?

(OR)

b) Explain various strategies and growth rates of five years planning.

10.a) Explain role of IDBI for Economic Development.

(OR)

b) Describe how Financial Institutions playing role for Country's Industrial Development?

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Section – C (Compulsory) (1x15=15)

Sathwik Ltd and Likith Ltd are the two companies from the same industry. The information given below is taken from their records.

Particulars	Sathwik Ltd. Rs.	Likith Ltd. Rs.
Fixed assets	16,95,000	25,00,000
Stock	12,00,000	10,00,000
Cash	2,25,000	3,25,000
Short term Investment	1,00,000	2,00,000
Debtors	3,00,000	5,50,000
Total assets	**35,20,000**	**45,75,000**
Share capital @ Rs. 10 each	12,00,000	18,00,000
10% Debentures	6,00,000	11,00,000
Reserve fund	9,00,000	4,00,000
Creditors	8,20,000	12,75,000
Total Liabilities	**35,20,000**	**45,75,000**
Sales	60,00,000	85,00,000
Cost of goods sold	42,00,000	62,00,000
Profit Before Interest and Tax	6,00,000	7,00,000

With the help of relevant ratio's answer the following question:

i) Which company is using the equity shareholders money more profitably?
ii) Which company is better able to meet its current debts?
iii) Which company collects its receivables faster?
iv) How long does it take for each company to convert stock in to cash?
v) Which company is depending more on long – term diabilities.

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S22-14-862-009

Code No. 1713

FACULTY OF SCIENCE
M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB' 2015
COMPUTER PROGRAMMING AND PROBLEM SOLVING

PAPER – III

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. How you create and run a C program.
2. Discuss different user-defined functions.
3. Write about enumerated data type.
4. Discuss features of C++
5. What is class? Explain syntax with example.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What is C-Expression? Discuss its precedence and Associativity.

(OR)

b) Illustrate different control statements.

7. a) What is pointer? How it will be user for Inter-Function communication?

(OR)

b) What is string? Illustrate different string handling functions.

8. a) Illustrate different file operations.

(OR)

b) Explain how to create text file from binary file.

9. a) What is polymorphism? Illustrate function overloading.

(OR)

b) What is Template? Illustrate Function Templates.

10.a) What is Inheritance? Illustrate it.

(OR)

b) What is Exception? Discuss how to handle Exceptions?

--oOo--

5822 - 14 - 882-009.

Code No. 1713/BL

FACULTY OF SCIENCE

M.C.A. I – SEMESTER BACKLOG/IMPROVEMENT EXAMINATIONS, JUNE 2016

COMPUTER PROGRAMMING AND PROBLEM SOLVING

PAPER – III

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Discuss Computing Environments
2. List and Explain pre-defined functions
3. Write about structure
4. Discuss about user-defined functions
5. Write about virtual function

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain Control Statements with Programs.

(OR)

b) What is an operator? List and explain different types of operators with their procedure and associativity.

7. a) What is an array? How it will be used for Inter-Function Communication.

(OR)

b) What is Pointer? How to pass pointers to functions.

8. a) What is File? Discuss about Formatting Input / Output Functions.

(OR)

b) Discuss about Text Vs Binary Streams in C.

9. a) What is overloading? Explain with example.

(OR)

b) What is Template? Explain with example.

10. a) What is dynamic polymorphism? How it is achieved through virtual functions.

(OR)

b) What is Inheritance? Explain different types with example.

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5022 -15 - 862 - 011

Code No. 1713

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, JAN-2016

COMPUTER PROGRAMMING AND PROBLEM SOLVING

PAPER – III

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. How constants declared in "C" language?
2. Define Recursion and explain with example?
3. Discuss about character Input /Output functions.
4. Discuss about scope resolution operator.
5. Write short notes on virtual functions?

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Write and discuss the steps of program development?

(OR)

b) Write about various loop statements.

7. a) Define an array and explain arrays as parameters to functions.

(OR)

b) Describe different types of string handling functions and write a program to check the given string in palindrome or not.

8. a) Write "C" program to copy contents of one file into another file?

(OR)

b) Discuss the differences between structures and union with suitable examples.

9. a) Discuss about inline function with an example?

(OR)

b) How function templates are useful explain with example?

10. a) Discuss in detail about exception handling in C++ programming with an example?

(OR)

b) Discuss in detail about inheritance with suitable examples.

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Code No.1713

FACULTY OF SCIENCES

MCA I – SEMESTER REGULAR EXAMINATIONS, DEC- 2017

COMPUTER PROGRAMMING AND PROBLEM SOLVING

PAPER – III

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Discuss about various computing environments.
2. Discuss about memory allocation functions.
3. Discuss about pre-processor directives?
4. Explain inline function with example?
5. Write about characteristics of object oriented programming?

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Compare else if ladders and switch statement with an example?

   (OR)

   b) Discuss about various operators in 'C' language.

7. a) Explain bubble sort with an example program.

   (OR)

   b) Define pointer and explain about passing pointers to functions with suitable example?

8. a) Discuss about enumerated data types.

   (OR)

   b) Discuss about various file Input / Output functions?

9. a) Discuss about function overloading with suitable example?

   (OR)

   b) Discuss in detail about different constructors in C++ with example?

10. a) What is template? Explain function templates and class templates with example?

    (OR)

    b) Define an exception? Explain about standard exceptions.

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Code No.1713

FACULTY OF SCIENCES

MCA I – SEMESTER REGULAR EXAMINATIONS, FEB- 2019

COMPUTER PROGRAMMING AND PROBLEM SOLVING

PAPER – III

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Write about the conditional and loop statements in 'C' Language?
2. How to pass pointer variables to functions?
3. Briefly explain about the input and output operations of a files?
4. Briefly write about Inline Functions?
5. Briefly Explain how exceptions are handled in a C++ with suitable examples?

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Describe in brief about the process of creating and running the 'C' program?

(OR)

b) Write a 'C' program to print all perfect numbers below 1000?

7. a) What is Recursion? Write a program to reverse a string using a user defined function.

(OR)

b) Write a program to multiply two matrices?

8. a) Differentiate between Structure and Union?

(OR)

b) Write a program to find sum of marks in three subjects for a student using structures?

9. a) What is operator overloading? Write a C++ program to illustrate overloading binary operators?

(OR)

b) Differentiate between call by value and call by reference?

10. a) Explain the procedure to catch multiple exceptions thrown from a single try block?

(OR)

b) What is Inheritance? Explain about different types of Inheritance used in C++ with examples?

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5022 - 14 - 882 - 009.

Code No. 1714

FACULTY OF SCIENCE
M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB' 2015
ELEMENTS OF INFORMATION TECHNOLOGY

PAPER – IV

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. What is operating systems list out types of operating systems.
2. Describe hard-disk.
3. What is Internet?
4. Write about file management.
5. Write about safe guarding computers.

Section – B

Answer the following questions in not more than **FOUR** pages each: (5x10=50)

6. a) Explain about Input and output devices.

(OR)

b) Write about Application soft ware and system software.

7. a) Explain about (i) Flash memory (ii) Optical disks.

(OR)

b) Describe the processor.

8. a) Describe the communication Networks.

(OR)

b) Write about Audio and Video communication.

9. a) Write about features of a DBMS.

(OR)

b) Describe the Database organization.

10. a) Write the threats of computers.

(OR)

b) Six phases of system analysis and design.

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Code No. 1714

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, JAN-2016

ELEMENTS OF INFORMATION TECHNOLOGY

PAPER – IV

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Define the terms i) Data ii) Information iii) Information Technology
2. What a short note on Printers and Plotters?
3. Explain about Multiplexing.
4. What is DBA? Discuss its responsibilities.
5. What are the different type of Viruses?

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What is an operating system? Explain different services provided by the operating system.

   (OR)

   b) Discuss the features of Windows NT operating system.
7. a) Explain the main parts of the system unit.

   (OR)

   b) Explain the different types of Input hardware in detail.
8. a) Explain various types of communication channels.

   (OR)

   b) What is LAN? Explain different topologies of LAN.
9. a) What are the four types of Database organizations and how do they work?

   (OR)

   b) Explain in detail all the 5 categories of Application Software.
10. a) What are the Six computer based information systems and their purposes? Explain.

    (OR)

    b) Explain the various threats to computers and communication systems.

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Code No. 1714

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, DEC-2017

ELEMENTS OF INFORMATION TECHNOLOGY

PAPER – IV

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Define Software? Explain types of software.
2. What is Compression and Decompression?
3. Write about www.
4. Differentiate between FMS and DBMS.
5. What are the three levels of Management? Explain.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain about (i) Object Oriented Programming (ii) Visual Programming.

   (OR)

   b) Write about any two Operating Systems.

7. a) Explain about Printers and Plotters.

   (OR)

   b) What are the Parts of Micro Computer System Unit? Explain.

8. a) Differentiate between Internet and Intranet?

   (OR)

   b) Define Network? Explain different topologies of Network.

9. a) What are the different types of Database Organization? Explain.

   (OR)

   b) Explain different types of Application Softwares?

10. a) What are the threats to Computers and Communication?

    (OR)

    b) Explain Programming as a Five Step Procedure.

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Code No. 1714

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB-2019

ELEMENTS OF INFORMATION TECHNOLOGY

PAPER – IV

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. What are the programming languages used today? Explain in brief.
2. What are pointing devices?
3. What are the factors affecting communication among devices?
4. Write a note on Data Storage Hierarchy?
5. Write a note on threats to computers?

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6 a) Explain five kinds of Computers and five generation of programming languages?

(OR)

b) What is booting process? Explain how operating system manages storage and resources?

7.a) Explain about Microcomputer system unit and Input and Output Devices?

(OR)

b) Discuss about Hard disks, Optical Disks, Flash Memory and Magnetic tape?

8. a) Explain about www, Audio communication and new internet technologies?

(OR)

b) Explain various communication channels and local networks?

9. a) Discuss about features of DBMS and types of Database Organization?

(OR)

b) Explain features of Application Software and discuss about Word processing and Spread sheet applications.

10. a) Explain the Six Phases of system analysis and design in detail?

(OR)

b) Explain programming as a five step procedure in Software Development?

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5022-14-862-009

Code No. 1712

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, FEB' 2015

PROBABILITY AND STATISTICS

PAPER – II

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Discuss one method of collecting statistical data.
2. Explain about Discrete probability – distribution.
3. What is gamma distribution? Explain with properties?
4. Derive central moments in terms of non-central moments.
5. Define one tailed and two tailed tests.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What are the various methods of collecting statistical data? Briefly explain their merits and demerits.

(OR)

b) Explain the process of gathering information from data charting.

7. a) Explain Binomial Distribution. If X is a random variable, following binomial distribution with mean 2.4 and variance 1.44. Find

i) $P(x \geq 5)$

ii) $P(1 \leq X \leq 4)$

(OR)

b) i) Define random variable with example

ii) Explain the laws of Probability.

8. a) i) Define Beta distribution of 2nd kind.

ii) What is normal distribution? Write its properties.

(OR)

b) i) Discuss rectangular distribution in detail.

ii) A continuous random variable X is uniformly distributed on the interval (c, d) given that $P(x<3) = 1/4$ and $P(x<7) = 3/4$ find **c** and **d**.

9. a) i) Discuss Kurtosis in detail.

ii) What is mathematical expectation? Determine the expected value of the numbers of points determined in throwing of a die once.

[PTO]

Code No. 1712

FACULTY OF SCIENCE

M.C.A. I – SEMESTER REGULAR EXAMINATIONS, JAN-2016

PROBABILITY AND STATISTICS

PAPER – II

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Define Statistical Data. How many stages are there in a statistical investigation?
2. A problem in statistics is given to two students 'A' and 'B'. The odds infavour A solving the problem are 6 to 9 and against 'B' solving the problem are 12 to 10. If A and B attempt, Find the probability of the problem being solved.
3. Define rectangular distribution. Find its mean and variance.
4. 'X' is a continuous random variable with probability density function.

   $f(x) = \frac{1}{20} e^{\frac{-x}{20}}, for\ x > 0$

   $= 0\ , for\ x \leq$

   Find E(X).
5. Two regression lines are X+6Y =6 and 3X+2Y=0. Find the correlation coefficient.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Draw the bar diagram and frequency curves for the following data:

Marks:	10-20	20-30	30-40	40-50	50-60
No. of students:	4	6	20	18	2

(OR)

b) For the following frequency distribution find mean and median.

Income (Rs):	1000	1500	800	2000	2500	1800
No. of Persons:	24	26	16	20	6	30

7. a) In a bolt factory machines A, B and C manufacture respectively 25%, 35% and 40% of the total. Of their output 5, 4, 2 percent are defective bolts. A bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by machine 'B'.

(OR)

b) Define Binomial distribution. Find mean and variance of the binomial distribution.

P.T.O.

8. a) Define Gamma distribution. Find mean, variance and moment generating function of Gamma distribution.

(OR)

b) X is a normal variate with mean 30 and S.D.5. Find the probabilities that
   i) $26 \leq X \leq 40$ ii) $X \geq 45$ iii) $X \leq 25$.

9. a) For a distribution the mean is 10, variance 16, r_2 is +1 and β_2 is 4. Obtain first four moments about the origin i.e, Zero. Comment upon the nature of the distribution..

(OR)

b) The following data are given to an economist for the purpose of economic analysis. The data refer to the length of a certain type of batteries.
   $n=100, \in fd=50, \in fd^2=1970, \in fd^3=2948 \in fd^4=86,752$ in which d=X-48.
   Do you think that the distribution is platykurtic?

10.a) For the following data:

	X	Y
Arithmetic mean	36	85
Standard Deviation	11	8

Correlation Coefficient between X and Y is 0.66

i) Find the two regression equations, and
ii) Estimate the value of X when Y=75.

(OR)

b) Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results:

Horse A:	28	30	32	33	29	34	33
Horse B:	29	30	30	24	27	29	

Test wether the two horses have the same running capacity, using t-test at 5% level of significance.

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Code No. 1712

FACULTY OF SCIENCE

M. C. A. I – SEMESTER REGULAR EXAMINATIONS, DEC- 2017

PROBABILITY AND STATISTICS

PAPER – II

Time: 3 Hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A (5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Define Numerical and categorical data give an example of each.
2. An MCA Student applies for a job in two firms X and Y, the probability of his being selected in firm X is 0.7 and being reject at Y is 0.5. The probability of at least one of his applications being rejected is 0.6. What is probability that he will be selected in one of the firms?
3. Define rectangular distribution. Find mean and variance.
4. Let X be a continuous random variable with probability density function.

$$f(x) = \begin{cases} ax & , \ 0 \le x \le 1 \\ a & , \ 1 \le x \le 2 \\ -ax + 3a & , \ 2 \le x \le 3 \\ 0 & , \ \text{elsewhere} \end{cases} . \textit{Determine the constant 'a'.}$$

5. If X=4Y+5, Y=kX+4 are the two lines of regression. $if\ k = \frac{1}{8}$ find the mean of the variable.

Section – B (5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Give below is the distribution of 140 candidates obtaining marks X or higher in a certain examination (all marks are given in whole numbers):

X	10	20	30	40	50	60	70	80	90	100
More than c.f	140	133	118	100	75	45	25	9	2	0

Calculate the mean, median and mode of the distribution.

(OR)

b) Draw the histogram and frequency curve for the following data:

Monthly wages in '000 Rs.	11-13	13-15	15-17	17-19	19-21	21-23	23-25
No. of workers	6	53	85	56	21	16	8

7. a) Form a city population, the probability of selecting (i) a male or a smoker is 7/10, (ii) a male smoker is 2/5 and (iii) a male, if a smoker is already selected is 2/3. Find the probability of selecting (a) a non-smoker, (b) a mole, and (c) a smoker, if a male is first selected.

P.T.O

(OR)

b) Define Poission distribution. Find mean and variance of Poission distribution.

8. a) Define Normal distribution, and find its moment generating function (MGF).

(OR)

b) In a distribution exactly normal, 10.03% of the items are under 25 kilogram weight and 89.97% of the items are under 70 kilogram weight. What are the mean and standard deviation of the distribution?

9. a) The first four moments of a distribution about the value x=4 are -1.5, 17, -30 and 108. Find the corresponding moments about the mean. Also find the moments about origin.

(OR)

b) The following data are given to an economist:
N=105, $\sum fd = 46$, $\sum fd^2 = 252$, $\sum fd^3 = 334$, $\sum fd^4 = 1668$. Calculate β_1 and β_2. Do you think that the distribution is Leptokurtic, Mesokurtic or platukurtic?

10.a) Regression equations of two variables X and Y are as follows.
3X+2Y-26=0, 6X+Y-31=0. Find (i) Mean (ii) the regression coefficients (iii) the coefficient of correlation between X and Y.

(OR)

b) Sample of two types of electric bulbs were tested for length of life and following data were obtained.

	Type I	**Type II**
Sample Size	9	7
Sample Means	1234 hrs	1036 hrs
Sample Standard Deviation	36 hrs	40 hrs

Is the difference in the means significant to warrant that type-I is superior to type-II regarding the length of life. Using t-test at 5% significance level.

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