PG-A–1550   **MCA-01 X**

P.G. DEGREE EXAMINATION — JULY, 2022.

Computer Application

(From CY 2020 Onwards)

First Year

COMPUTER FUNDAMENTALS

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Explain about the Computational data.

2. What is CPU? Explain the CPU Organization.

3. Write short notes on Assembly Language Program.

4. Discuss about the Inter processor arbitration.

5. List out of the Parallel Algorithm.

6. Give a brief account on Program development tools.

7. Explain about the Formats give example.

8. Describe about the Cache coherence.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions.

9. Write about the Elements of Sequential circuits.

10. Describe the Register Organization and Micro-Operations.

11. List and describe Characteristics of Instruction set.

12. Discuss in detail about Parallel Organization and RISC.

13. Give a brief account on an advanced structure.

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PG-A-1551	MCA–02X

M.C.A. DEGREE EXAMINATION - JULY 2022

(From CY 2020 Onwards)

First Year — Non Semester

INTRODUCTION TO SOFTWARE

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight Questions
in 300 words.

1. Explain the benefits of operating system.

2. Name the functions of a loader with an example.

3. Write short notes on process management.

4. Write a shell script to find whether a given number is prime or not.

5. Name the three basic components of UNIX operating system.

6. Explain the various types of loops.

7. Explain the Qualities of software briefly with examples.

8. Explain the role of a software engineer.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five Questions in 1000 words.

9. Write any two disk scheduling Algorithms in detail.

10. Explain in detail about the file protection in UNIX.

11. Explain any two parameter passing techniques in detail.

12. What is meant by programming Tools? Explain.

13. Illustrate the fundamental steps in software development.

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P.G. DEGREE EXAMINATION — JULY 2022.

Computer Application

(CY – 2020 onwards)

First Year

DATA STRUCTURES THROUGH "C"

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight questions in 300 words

1. What are the data types available in C?

2. State the rules to be followed for infix to postfix conversion. Evaluate the infix expression. 3 + 8 * 4/2 –(8 – 3) in post fix notation.

3. Mention the differences between call by value and call by reference.

4. Explain in brief how to check whether the stack is full or empty.

5. What is Graph? How it can be represented by Adjacency matrix?

6. What is AVL Tree? Write its features.

7. Define Sorting. Write a program to sort a given set of numbers in ascending order.

8. Explain linear search algorithm in detail.

PART B — (3 × 15 = 45 marks)

Answer any Three questions out of Five questions in 1000 words

9. What are the operators available in C? Explain in detail.

10. Explain in brief insertion of nodes in various positions of a singly linked list.

11. Explain Depth First Search in detail.

12. What is meant by traversing a graph? Write an algorithm for Depth-first search and explain.

13. Write a program to traverse a binary tree in preorder, postorder and inorder.

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PG–A-1553	MCA–04X

P.G. DEGREE EXAMINATION — JULY 2022.

Computer Applications

(From CY – 2020 onwards)

First Year

ELEMENTS OF SYSTEM ANALYSIS AND DESIGN

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight questions in 300 words.

1.   What are the boundaries and Interfaces of a system?

2.   Describe the system development environment.

3.   C1assify the types of system.

4.   Explain briefly the procedure used in construct Questionnaires.

5.   Explain decision support system.

6. Discuss any three characteristics of a system.

7. Explain the term 'Prototyping' with an example.

8. Write short notes on process modeling'.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five questions in 1000 words.

9. Classify various business system models with example.

10. Explain how decision support system help indecision making.

11. What are the key qualities of Manager of M/S Services?

12. Explain HIPO in detail.

13. What are qualities of a project leader? Explain in detail.

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PG-A-1554 MCA–05X

P.G. DEGREE EXAMINATION – JULY, 2022.

Computer Applications

(From CY – 2020 onwards)

First Year

INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight questions in 300 words

1.   Define DBMS. Discuss the three schema architecture of a DBMS.

2.   Write the different operators of relational algebra and explain them.

3.   With example explain first normal form and second normal form.

4.   What are data models? State their advantages.

5. Explain views in SQL.

6. Distinguish between database and knowledge base systems.

7. What are the various set operators in SQL?

8. List out the advantages of limit server computing

PART B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five questions in 1000 words

9. Explain E-R diagram with example.

10. List the data management issues to be considered by a management of an organization.

11. Explain DDL, DML, DCL and TCL commands in SQL.

12. State and explain the various normal forms used for database design.

13. What is knowledge database management system?

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P.G. DEGREE EXAMINATION —
JULY, 2022.

(From CY – 2020 Onwards)

First Year

INTRODUCTION TO COMPUTER ORGANIZATION

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions each in 300 words.

1.   Write a brief note on Floating point.

2.   What is DMA? Explain it.

3.   Write short notes on register organization.

4.   Explain about the I/O services give example.

5.   Write a brief note on interrupts.

6.   Explain about the internal connection structures.

7.   Briefly explain about the External interface.

8.   Discuss about the Instruction format.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions each in 1000 words.

9. Describe about the Error detection and correction codes.

10. Discuss in detail about High speed memories.

11. Explain in detail about the control unit Organisation.

12. Explain in detail about the Programming with loop.

13. Discuss in detail about Combinational circuits.

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PG–A–1556	MCA–07 X

P.G. DEGREE EXAMINATION — JULY, 2022.

Computer Application

(From CY – 2020 Onwards)

First Year

INTRODUCTION TO SOFTWARE ENGINEERING

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions each in 300 words.

1.   What is a RAD? Explain it.

2.   Discuss about the Project Development team Structures.

3.   Explain about the project scheduling.

4.   Describe about the design and Specification.

5.   List the different analysis methods.

6.   What are the Software Quality Assurance.

7. What are the stages available in testing process?

8. Write a short notes the phases of a software project.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions each in 1000 words.

9. Explain in detail the Fourth generation Techniques.

10. Discuss about the Project Management concepts.

11. Give your comment on software Reliability and ISO 9000 quality standards.

12. Discuss the importance of the Architectural design and process.

13. Explain the verification and validation techniques in detail.

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P.G. DEGREE EXAMINATION —
JULY, 2022.

Computer Applications

(From CY – 2020 Onwards)

First Year

COMPUTER ORIENTED NUMERICAL METHODS

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1.   How the numbers are represented in floating point form?

2.   Solve by Gauss-elimination method :

$3x + 4y - 7z = 23; \ 7x - y + 2z = -14$;
$x + 10y - 2z = 33$.

3.   Explain about the Lagrange's method of interpolation.

4.   Solve the equation $\dfrac{dy}{dx} = 1 - y$ with the initial condition $x = 0, \ y = 0,$ using Euler's method and tabulate the solutions at $x = 0.1, 0.2, 0.3$ and 0.4 .

5. Describe any one iterative method of solving systems of simultaneous linear equation.

6. Solve $x^3 + x - 1 = 0$ using Newton-Raphson method.

7. Discuss about the Least square approximation of function.

8. Explain about the Gaussion quadratic formula.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions.

9. Find the root of $x^3 - 5x + 3 = 0$ that lies between 1 and 2 by regula falsi method.

10. Solve the equation by using Gauss Elimination method

$3x + y + z = 4$
$x + 4y - z = -5$
$x + y - 6z = -12.$

11. Explain about the linear regression and polynomial regression.

12. (a) Using Lagrange's interpolation formula find the values of x when $y = 19$ the value of x and y are

y	0	1	20
x	0	1	2

(b) Describe Newtons interpolation formula.

13. Discuss about the Runge and Kutta methods.

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PG-A-1558   MCA–09X

P.G. DEGREE EXAMINATION –
JULY, 2022.

Computer Application

(From CY – 2020 onwards)

First Year

C++ AND OBJECT ORIENTED PROGRAMMING

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight questions in 300 words.

All questions carry equal marks.

1. Bring out the benefits of Object-Oriented Programming.

2. Write a C++ program to find sum and average of the given n values.

3. What is Structure and how is it different from a union?

4. What is Friend function? How it is different from member function?

5. Discuss about Constant and variables. Give example.

6. Write a note on break and continue statements.

7. Discuss about Character arrays with example.

8. Explain the Parameterized constructor with the help of suitable C++ program.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five questions in 1000 words.

All questions carry equal marks.

9. Describe in detail about Storage classes.

10. Explain the Control structures in C++ with example.

11. How do you declare and initialize Multi-dimensional array? Discuss with example.

12. Discuss about Inheritance and its types.

13. State the important features of object-oriented programming. Compare object-oriented programming with procedure-oriented programming.

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P.G. DEGREE EXAMINATION — JULY, 2022.

Computer Applications

(From CY – 2020 onwards)

First Year

THEORY OF COMPUTER SCIENCE

Time : 3 hours   Maximum marks : 70

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight questions in 300 words.

All questions carry equal marks.

1. If $A = \{\alpha, \beta\}$ and $B = \{1, 2, 3\}$, what are $A \times B, B \times A, A \times A, B \times B$ and $(A \times B) \cap (B \times A)$?

2. Using the statements :

    (a) R : Mark is rich

        H : Mark is happy

Write the following statements in symbolic form :

(i) Mark is poor but happy

(ii) Mark is rich or unhappy.

(b) Let p : A triangle is equilateral and q : It is equiangular.

Write this statement in symbolic form.

3. Write any two closure properties of regular languages.

4. Show the below graphs are not isomorphic :
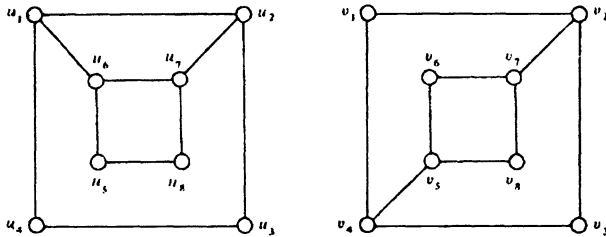
5. Show that $P->Q$ and its contra positive are equivalent.

6. Define Bijective mapping with an example.

7. What is ambiguours grammar? Give example.

8. Compare DFA and NFA.

PART B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five questions in 1000 words.

All questions carry equal marks.

9. Discuss about the various set operations with Venn diagram.

10. Obtain the principal conjunctive and principal disjunctive normal forms of $(\rceil P \to R) \wedge (Q \rightleftharpoons P)$.

11. Discuss about the types of Phrase Structured Grammars.

12. Explain the paths, reachability and connectedness of graphs.

13. Show that

$R \vee S$ follows logically from the premises $C \vee D$, $(C \vee D) \to \rceil H$, $\rceil H \to (A \wedge \rceil B)$, and $(A \wedge \rceil B) \to (R \vee S)$.

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