PG-C-2279 **MCA–01X**

P.G. DEGREE EXAMINATION - FEBRUARY, 2023

Computer Application

First Year

COMPUTER FUNDAMENTALS

Time : 3 hours Maximum marks : 70

SECTION A — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

1. Explain about generation of computers.

2. Describe about the structure of control unit.

3. Summarize in detail about instruction set.

4. Write short notes on methods of pipelining.

5. Describe in detail about Boolean algebra.

6. Analyze the desirable properties of micro operations.

7. Write about the conversion of interfacing assembly program to HLL program.

8. Explain about the data flow architecture of parallel algorithms.

SECTION B — (3 × 15 = 45 marks)

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

All questions carry equal marks.

9. Explain in detail about data representation with examples.

10. Generalize about ALU and control unit in detail.

11. Discuss about various addressing modes in detail.

12. Describe in detail about pipeline vector processing.

13. Summarize in detail about comparison of various RISC architecture.

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PG–C-2280 **MCA–02X**

P.G. DEGREE EXAMINATION — FEBRUARY 2023.

Computer Application

First Year

INTRODUCTION TO SOFTWARE

Time : 3 hours Maximum marks : 70

PART A — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

1. Explain about problem solving stages in detail.

2. Describe in detail about the basic structure of UNIX Os.

3. Summarize in detail about the UNIX operators and evaluation of expression.

4. Write short notes on software life cycle with neat diagram.

5. What is deadlock? Describe in detail about deadlock avoidance.

6. Analyze the desirable functions of UNIX text editors and line editors.

7. Write in detail about (a) Conditional statements (b) Looping statements of UNIX OS.

8. Explain about the role of software engineer in detail.

PART B — ($3 \times 15 = 45$ marks)

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

All questions carry equal marks.

9. Explain in detail about partition and page management.

10. Generalize about UNIX file permissions and privileges in detail.

11. Discuss about system administration in detail.

12. Describe in detail about principles of software engineer.

13. Summarize in detail about trends in software development.

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PG–C-2281 **MCA–03X**

P.G. DEGREE EXAMINATION — FEBRUARY 2023.

Computer Application

First Year

DATA STRUCTURES THROUGH "C"

Time : 3 hours Maximum marks : 70

PART A — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

1. Describe in detail about the basic structure of a C program.

2. Write a comparison of Call by value and Call by reference.

3. Define stack. Summarize in detail about stack operations.

4. Write short notes on binary tree and its representation with neat diagram.

5. What is pointer? Describe in detail about pointers with example programs.

6. Analyze about the various storage classes of C.

7. Write in detail about the implementation of queue structure using array in C.

8. Define searching. Explain about binary search in detail with example program.

PART B — $(3 \times 15 = 45$ marks)

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

All questions carry equal marks.

9. Define operator. Explain in detail about various types of C operators with examples.

10. What is an array? Generalize about types of arrays in detail.

11. Discuss about types of graph traversals in detail with examples.

12. Describe in detail about various sorting techniques.

13. Summarize in detail about types of linked lists with examples.

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PG–C–2282 **MCA–04X**

P.G. DEGREE EXAMINATION — FEBRUARY, 2023.

Computer Application

First Year

ELEMENTS OF SYSTEM ANALYSIS AND DESIGN

Time : 3 hours Maximum marks : 70

PART A — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

1. Describe in detail about system development life cycle.

2. What is a file? Generalize about types of files in detail.

3. Define testing. Summarize in detail about benchmark testing.

4. Write short notes on attributes of good analyst.

5. Describe in detail about the role of system analyst.

6. Summarize about the various elements of input data.

7. Explain about system documentation in detail.

8. Write in detail about Ergonomics.

PART B — $(3 \times 15 = 45$ marks)

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

All questions carry equal marks.

9. Explain in detail about project selection.

10. Generalize about design methodologies in detail.

11. Write detailed notes on system implementation.

12. Describe in detail about multimedia components and requirements.

13. Summarize about feasibility study in detail.

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PG–C–2283 **MCA–05X**

P.G. DEGREE EXAMINATION — FEBRUARY 2023.

Computer Application

First Year

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

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 is Functional dependency? Explain.
2. Explain the File Management system and its drawbacks.
3. Difference between Primary Key and Foreign Key.
4. Explain the properties of Normalization.
5. Explain Knowledge base Management System.
6. Explain the design of Distributed database in detail.

7. Explain DBMS with its advantages and disadvantages in detail.

8. Explain Relational Model in detail.

PART B — (3 × 15 = 45 marks)

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

9. What are the methods of File organization? Explain in detail.

10. Explain Relational Algebra and its types in detail.

11. Describe Anomalies in a database in detail.

12. Define Normalization. Explain its types in detail.

13. Difference between KBMS and DBMS.

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PG–C–2284 **MCA–06X**

P.G. DEGREE EXAMINATION — FEBRUARY, 2023.

Computer Application

First Year

INTRODUCTION TO COMPUTER ORGANISATION

Time : 3 hours Maximum marks : 70

SECTION A — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

1. Explain the hardware of the computer with neat diagram.

2. What are the types of auxiliary memory?

3. Describe about the major components of CPU.

4. What are I/O services? Explain.

5. What do you mean by cache memory?

6. Write a note on sequential circuits.

7. Pen down in detail about sequencing.

8. Write about Direct Memory Access.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five questions in 1,000 words.

All questions carry equal marks.

9. Describe in detail about combinational circuits.

10. Write a detailed note on types of Random Access Memory.

11. Write in detail about control unit organisation.

12. Elaborate Microcomputer architecture.

13. Explain the block diagram of combinational circuit in detail.

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PG-C-2285 **MCA–07X**

P.G. DEGREE EXAMINATION - FEBRUARY, 2023

Computer Application

First Year

INTRODUCTION TO SOFTWARE ENGINEERING

Time : 3 hours Maximum marks : 70

SECTION A — ($5 \times 5 = 25$ marks)

Answer any FIVE questions out of Eight Questions in 300 words.
All questions carry equal marks.

1. What do you mean by linear model?

2. Define in detail about the role of system Analyst.

3. Pen down the concept of sequential plan.

4. What is called specification modeling?

5. "Art of debugging" explain.

6. Write in detail about project planning.

7. What do you mean by mitigation?

8. What is the use of testing?

SECTION B — (3 × 15 = 45 marks)

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

All questions carry equal marks.

9. Elaborate spiral model.

10. Explain the concept of risk identification.

11. Describe about ISO 9000 quality standards.

12. Define in detail about black box testing.

13. Explain RAD.

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PG–C–2286 **MCA–08X**

P.G. DEGREE EXAMINATION — FEBRUARY, 2023.

Computer Application

First Year

COMPUTER ORIENTED NUMERICAL METHODS

Time : 3 hours Maximum marks : 70

SECTION A — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

1. Explain about the floating representation of numbers with suitable example.

2. Solve the system of equations $5x + 4y = 15$ and $3x + 7y = 12$ by Gauss Jordan method.

3. By the method of least squares find the best fitting straight line to the data given below.

x :	5	10	15	20	25
y :	15	19	23	26	30

4. Using trapezoidal rule evaluate $\int_{0.6}^{2} y\,dx$ from the following table.

x :	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
y :	1.23	1.58	2.03	4.32	6.25	8.36	10.23	12.45

5. Compare direct and indirect method of solving linear algebraic equations.

6. Using Lagrange's interpolation formula, find a second degree polynomial which passes through the points (0, 0), (1, 1) and (2, 20).

7. Find the smallest positive root of the equation $3x - \cos x - 1 = 0$ by Newton Raphson method.

8. Explain briefly about pitfalls in computation.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions out of Five questions in 1,000 words.

All questions carry equal marks.

9. Using Euler's method solve numerically the equation

$y^1 = x + y,\ y(0) = 1$ for $y(0.2)$ and $y(0.4)$ by taking $h = 0.2$.

10. Solve the system of equations $8x - 3y + 2z = 20$; $4x + 11y - z = 33$; $6x + 3y + 12z = 35$ by using Gauss Jacobi method correct to 2 decimal places.

11. Solve the equation $2x + y = 3$ and $7x - 3y = 4$ by Gauss elimination method.

12. By applying Runge-Kutte method of fourth order find $y(0.1)$ from $y^1 = y - x$, $y(0) = 2$ by taking $h = 0.1$.

13. Write detailed notes on sources of errors.

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PG-C-2287 **MCA–09X**

P.G. DEGREE EXAMINATION – FEBRUARY, 2023.

Computer Application

First Year

C++ AND OBJECT ORIENTED PROGRAMMING

Time : 3 hours Maximum marks : 70

PART A — ($5 \times 5 = 25$ marks)

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

All questions early equal marks.

1. Define the structure of C++ program.
2. Write about arithmetic and relational operators.
3. How to initialize multidimensional arrays?
4. Define the rules of function overloading.
5. Differentiate break and continue statements.
6. What do you mean by type conversions?
7. What is the difference between while and do...while statements?
8. Define null character.

PART B — ($3 \times 15 = 45$ marks)

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

All questions carry equal marks.

9. Explain about various types of data types.

10. Describe switch case with an example program.

11. Explain about structures versus union.

12. What are the rules of operator overloading?

13. Elaborate type of inheritance.

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PG–C–2288 **MCA–10X**

U.G. DEGREE EXAMINATION — FEBRUARY 2023.

Computer Application

First Year

THEORY OF COMPUTER SCIENCE

Time : 3 hours Maximum marks : 70

SECTION A — ($5 \times 5 = 25$ marks)

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

1. Write short note on Equivalence Classes?

2. Write the properties of Context Free Grammar in detail?

3. Write short note on Relations operations?

4. What is Graph? Explain the categories.

5. Write short note on Atomic logic?

6. Explain any two matrix representation of graph.

7. Define adjacency matrix of the graph G explain with an example.

8. Discuss about Trees in details.

SECTION B — $(3 \times 15 = 45$ marks)

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

9. Discuss in detail about function types.

10. State and prove pumping lemma for Context free languages.

11. Prove that U, the universal language is recursively enumerable but not recursive.

12. What do you mean by Regular Language? Explain the applications of Pumping lemma.

13. Discuss about various Normal Forms.

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