PG–C–2290 **MCA–01X**

U.G. DEGREE EXAMINATION — DECEMBER, 2023.

Computer Application

First Year

COMPUTER FUNDAMENTALS

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. Write short notes on generation of computers?

2. Brief the basic structure of CPU.

3. Discuss in detail about instruction set.

4. Explain about Inter processor communication?

5. Describe in detail about Boolean algebra.

6. Discuss Cache coherence in detail.

7. Write short notes on RAM and ROM.

8. Briefly describe the CPU components.

PART B — $(3 \times 15 = 45$ marks)

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

All questions carry equal marks.

9. Illustrate sequential circuits and interconnection structures in detail.

10. Describe the Register Organization and Micro–Operations.

11. Discuss about various addressing modes in detail.

12. Explain RISC architecture and provide comparison of various RISC architectures.

13. Explain achitecture of microprocessor with neat diagram.

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PG–C–2291 **MCA–02X**

U.G. DEGREE EXAMINATION — DECEMBER, 2023.

Computer Application

First Year

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.

All questions carry equal marks.

1. Write short notes of flowchart?

2. Discuss different types of files?

3. Brief about command interpreter.

4. Write short note on quality of software product.

5. Explain the operators in shell programming.

6. Write short notes on graphical user interface.

7. Write the features of text editor.

8. Describe how to add user accounts.

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 any one CPU scheduling algorithm with diagram.

10. Explain in detail about structure of UNIX operating system.

11. Elaborate the various operators and expression evaluation in shell programming.

12. Discuss the phases of software life cycle with a neat diagram.

13. Summarize the role of system administrator.

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PG–C–2292 **MCA–03X**

U.G. DEGREE EXAMINATION — DECEMBER, 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. Brief increment and decrement operator in C?

2. Write short notes on Functions.

3. Brief about Queue structure.

4. Discuss about Binary search?

5. Write short notes on union with example.

6. Write Sequential file organization in detail.

7. Write short notes on BFS with necessary example.

8. Explain about pointers with suitable example.

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 control structures in C programming.

10. Discuss in detail about storage classes in C programming.

11. Explain implementation of stack using array in C with suitable example.

12. Discuss Tree Traversals with suitable example.

13. Explain in detail about heap sort with example.

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PG-C–2293 **MCA-04X**

P.G. DEGREE EXAMINATION — DECEMBER 2023.

Computer Application

First Year

ELEMENTS OF SYSTEMS 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

All question carry equal marks.

1. Brief about elements of system analysis.

2. Brief Warnier orr diagrams.

3. Describe entity relationship diagram with neat illustrations.

4. Disucss the attributes of good analyst.

5. Discuss System development life cycle in detail.

6. Write about prototype design in detail.

7. Discuss about Ergonomics.

8. Explain communicating with computers.

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 DFD with example.

10. Discuss in detail about various types of documentation.

11. Elaborate on file design.

12. Define MIS. Explain the impact of MIS and building of MIS.

13. Explain the hardware and software requirements of multimedia.

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PG-C–2294 **MCA-05X**

P.G. DEGREE EXAMINATION —
DECEMBER 2023.

Computer Application

First Year

INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

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 basic concepts of database.

2. Brief network model.

3. Describe sequential file organization.

4. Brief relational model.

5. Discuss about server and client.

6. Explain advantages of database approach.

7. Distinguish between file system and database system.

8. Compare and contrast RDBMS and OODBMS.

PART B — ($3 \times 15 = 45$ marks)

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

9. Explain three level architecture of DBMS with an illustration.

10. Discuss in detail about elements of DBMS.

11. Summarize evaluation of DBMS.

12. Describe relational algebra in detail.

13. Distinguish between KBMS and DBMS.

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PG-C-2295 **MCA-06X**

P.G. DEGREE EXAMINATION — DECEMBER 2023.

Computer Application

First Year

INTRODUCTION TO COMPUTER ORGANISATION

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 logic gates with illustrations.

2. Brief it- sequential circuits.

3. Describe I/O model.

4. Detail it- ALU organisation.

5. Discuss about programming with loops.

6. Explain various memory devices.

7. Enumerate on types of auxillary memory.

8. Explain structure of CPU.

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 Inter connection structures.

10. Enumerate on peripheral devices.

11. Elaborate on cache memory.

12. Describe associated memory.

13. Illustrate and Explain addressing modes.

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PG–C–2297 **MCA–08X**

P.G. DEGREE EXAMINATION — DECEMBER, 2023.

Computer Applications

First Year

COMPUTER ORIENTED NUMERICAL METHODS

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. If $a = .4616E3$ and $b = .6533E3$, find the sum of a and b.

2. If $a = .2222E-17$ and $b = .1010E-10$, find a/b.

3. Describe direct method.

4. Solve the system $7x - 5y = -50$ and $2x + y = -7$ using Camer's rule.

5. Using Lagrange's inverse interpolation formula find the value of X when $Y=19$. The value of X and Y are

Y	0	1	20
X	0	1	2

6. Enumerate on extrapolation.

7. Use Simpson's One-third rule to evaluate:

$$\int_0^1 \frac{dx}{1+x}$$

Correct to three decimal, taking $h=0.25$.

8. Explain Gaussian quadrate.

PART B — ($3 \times 15 = 45$ marks)

Answer any THREE questions out of Five questions in 1000 words.
All questions carry equal marks.

9. If $a=.5555E1$, $b=.4545E1$ and $c=.4535E1$, prove that $a(b-c) \neq ab-ac$.

10. Find the root of $3x+\sin x+e^x=0$ using regular falsi method

11. Solve the following system of equations by Gauss elimination $x_1 - x_2 + x_3 = 1$.

$$-3x_1 + 2x_2 - 3x_3 = -6$$
$$2x_1 - 5x_2 + 4x_3 = 5$$

12. Given

x	2	3	4	5
$f(x)$	2.626	3.454	4.784	6.986

Find $f(3.5)$ using Newton's Interpolation formula

13. Use Euler's improved method to solve $\frac{dy}{dx} = -2x^2 y$ for $x = 0.6$ and $h = 0.2$ with boundary condition $y = 1$ and $x = 0$.

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PG-C–2298 **MCA-09X**

P.G. DEGREE EXAMINATION —
DECEMBER 2023.

Computer Application

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

1. Brief about the tokens and identifiers.

2. Write the concept of storage classes.

3. Brief the break and continue statement with example.

4. How does the new and delete operators work?

5. Discuss the character array and null character.

6. Write a program to take 5 float values from the user and store them in an array.

7. Discuss what are the visibility labels used in C++.

8. Discuss about the exception handling.

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 the benefits and concepts of OOP.

10. Write any four operators in C++ with examples.

11. Describe the concepts of structures in detail.

12. Explain the function used in C++ with example.

13. Describe in detail about overloading.

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PG–C–2299 **MCA–10X**

P.G. DEGREE EXAMINATION — DECEMBER, 2023.

Computer Applications

First Year

THEORY OF COMPUTER SCIENCE

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 the inverse function.

2. What is the representation of a relation.

3. Find the conjunction and disjunction of the propositions p and q where p is the proposition 'Today is Monday' and q is the proposition 'It is raining today'.

4. Explain the inference theory.

5. Short notes on turing machines.

6. Write about the representation of finite automata.

7. Explain the basic definition of graph theory.

8. Show that every node and edge of a graph are contained in exactly one Weak component.

PART B — $(3 \times 15 = 45$ marks)

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

All questions carry equal marks.

9. What is set? Explain in detail about operation of set.

10. Briefly discuss about the logical connectives giving example of each type.

11. State and proof pumping lemma for context free language.

12. Discuss briefly the graph with suitable examples.

13. Prove that in an acyclic simple digraph a node base consists of only those nodes whose in degree is zero.

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