Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **UGCS-01**	Course Title: Computer Fundamentals	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Convert the following Number System.

 a) $(534)8 = (?)16$

b) $(101011)2 = (?)8$

 c) $(624)8 = (?)2$

 d) $(11101)2 = (?)8$

e) $(3B1)16 = (?)2$

 f) $(AC2)16 = (?)8$

2. Draw a block diagram of a computer. Explain the function of each of the blocks. Explain input and output devices.

3. What are the various objectives and functions of Operating systems? . What are the major activities of an operating systems with regard to process management?

Section - B
Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words.

4. What is Cache Memory? How it reduce the mismatch of processor and main memory speed?

5. Explain the magnetic Disk storage organization.

 6. Explain the storage organization of Compact Disk ROM.

7. What is difference between Magnetic disk & Magnetic Tape?

8. What is the difference between multitasking and multiprogramming operating system?

 9. What is input-output Device? Explain the role of input-output device in computer system.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **UGCS-04**	Course Title: **C Programming**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What are different basic data types in C ? Explain the need of different numeric   data types with example of each.

2. What is an array ? Write a C program using array to find largest and smallest number from a list of 100 given numbers

3. What is union ? How it is different from structure ? Explain. How a union is declared in C ? Also write a program in C to show use of union.

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

4. Explain the differences between static and auto variables, with example of each.

5. Differentiate between call by value and call by reference using example program.

6. Explain the syntax of do-while statement.Also differentiate do-while from while Statement

7. What is recursion?

8. What are the logical operators in C ?

9. Differentiate between call by value and call by reference using example program.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **UGCS-06**	Course Title : Database Management System	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Draw and explain the detailed system architecture of DBMS. What are the advantages of DBMS?

2. Explain in detail about various key constraints used in database system. Explain the importance of Null values in Relational Model

3. Discuss the ACID properties of a database transaction with appropriate examples. Draw transaction state diagram and describe each state that a transaction goes through during its execution.

Section – B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words
4. What is DBA? Mention the functionalities of DBA

5. How are views created and dropped? Explain, how the views are implemented and updated
6. Discuss 3-tier architecture with necessary diagram and suggest an example application

7. Explain in detail about internal hashing Techniques.

8. Discuss in detail about cluster and Multilevel indexes.

9. State BCNF. How does it differ from 3NF?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

| Course Code: **UGCS-08** | Course Title: **Discrete Mathematics** | Maximum Marks : 30 |

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is the proposition? Explain different logical connectives used in propositions with the help for example

2. Draw a Venn diagram to represent followings: (3)
    i)   (A ∩ BU C) ~A
    ii)   (A U B U C) ∩ (B ∩ C)

3. Explain the following types of relations with the help of suitable examples.

    a. Reflexive

    b. Anti symmetric

    c. Transitive
    d. Equivalence

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

4. Express the Boolean expression $xyz' + y'z + xz'$ in a sum of product form.

5. Construct the logic circuit and obtain the logic table for the expression $x1$ v (x'2 A x'3)

6. How many numbers are there between 100 and 1000 such that 7 is in the unit's place ?

7. Verify that the proposition p v (P A Q) is a tautology.

8. How many permutations are there for the word ASSOCIATION ?

9.   Prove De Morgan's laws using truth table.

| Course Code: **UGCS-09** | Course Title : **Computer Network** | Maximum Marks : 30 |

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain the OSI reference model with neat diagram.

2. Explain the various types of multiplexing

3. How does BGP resolve count to infinity problem?. Explain the operation of hierarchical routing though illustration

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Discuss any two benefits of SSL.

5. What is spread spectrum? What are the two types of spread spectrum used in wireless data network? Elaborate.

6. What is silky windows syndrome?

7. Find the net id and host id of the following IP addresses.
     114 . 35 . 2 . 7
      133 . 57 . 6 . 8
    207 . 34 . 54 . 12

8. What is microwave transmission?

9. For n devices in a network, what is the number of cable links, number of full duplex channels for a mesh topology?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **UGCS-11**	Course Title : C++ and Object Oriented Programming	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain, with suitable examples, the advantage of object oriented language over structured programming language.

2. What is Inheritance? Explain its advantages. Also explain with example how a subclass is derived from a super class in C++
.
3. What is constructor? Explain constructor overloading in C++ with an example.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Differentiate between method overloading and method overriding with an example

5. What is Polymorphism ?

6. Write a C++ program to find the length of a given string.

7. What is Friend function in C++ ?

8. What do you mean by dynamic binding? How it is useful in OOP?

9. What do mean by abstract class and container class?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **UGCS-03**	Course Title : **System Software**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words

1. Describe the analytical phases of compiler briefly

2. What is meant by macro calls within macro? Write about the different macro expansion

3. Write notes on:

   a) Linkage   editors.

   b) Absolute loader

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. List out the functions of Parser

5. What is relocation?

6. What is an interpreter?

7. What is symbol table?

8. What is boot strap loader?

9. What is an interactive debugger?

Course Code: **UGCS-07**	Course Title : **System Analysis and Design**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Draw a Data Flow Diagram (DFD) **till** second level depicting various processes,data flow and data repositories for a"Library Management System". Follow the conventions.

2. Define a Structure Chart. Draw a Structure Chart for a Payroll Processing System. Also,explain the symbols used in the chart.

3. Define modularity. Describe the ways and means to achieve modularity. Explain with the help of an example.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Write the importance of quality in software development.

5. Define CASE tools. Explain their role
.
6. With the help of an example, explain a sequence diagram

Write short notes on the following :
7. Participatory Design

8. Test Design Document

9. Coupling

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School of Science,   Assignment Session 2021-22

Course Code: **UGCS-17**	Course Title **Operation Research**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words

1. Explain the   meaning of linear programming problem stating its uses and give its limitations. Write at least five application areas of linear programming.

2. Discuss the origin and development of OR. . How computer has helped in popularizing OR? What are the limitations of OR? Describe the various objectives of OR.

3. Why do some problems have multiple optimal feasible solutions? How such information is useful for decision making?

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Write short notes on phases of operation research.
5. Differentiate between PERT and CPM.
6. State Bellman's Principle of optimality.
7. Explain Transportation Problem.
8. Explain Economic interpretation of duality in LPP.
9. What is the role of decision making in OR. Explain its scope.