

**D-4758**

**Sub. Code**

**12913**

DISTANCE EDUCATION

B.Sc. (IT) DEGREE EXAMINATION, DEC 2020.

First Semester

PRINCIPLES OF INFORMATION TECHNOLOGY.

(CBCS 2018-19 academic year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Which protocols are used in an email communication?
2. Define the following: (a) Connectivity (b) Interactivity.
3. List out Database software.
4. What is meant by Groupware?
5. Define the term "Bit".
6. Why Registers are used?
7. What is the difference between Internet and Intranet?
8. What are the uses of Modems?
9. List out the types of Secondary Storage Devices.
10. What are the features of DBMS?

PART B — (5 × 5 = 25 marks)

Answer ALL the Questions choosing either (a) or (b)

11. (a) Discuss about the various developments in Computer Technology.

Or

- (b) Explain the types of Database organization.

12. (a) Explain Communications Software.

Or

- (b) Why Internet Web Browsers are used? Explain.

13. (a) Explain the octal number systems with suitable example. Convert your own octal number to binary number.

Or

- (b) Describe Quine-McKluskey method with suitable example.

14. (a) Write short notes on Modems, ISDN lines and Cable Modems.

Or

- (b) Differentiate Communications Networks from Local Networks.

15. (a) Explain about Compression and Decompression.

Or

- (b) Discuss and Differentiate file Management system with DBMS.

PART C — (3 ×10 = 30 marks)

Answer any THREE questions.

16. List out the six elements of a Computer and Communications System. Explain.
  17. Explain in detail about any two types of Application Software.
  18. Describe De Morgan's theorems with suitable example.
  19. Explain in detail about Communications Networks with examples.
  20. Briefly explain the types of Secondary Storage Devices
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**D-4759**

**Sub. Code**

**12923**

DISTANCE EDUCATION

B.Sc. (Information Technology) DEGREE EXAMINATION,  
DEC 2020.

Second Semester

PROGRAMMING IN C AND DATA STRUCTURES

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define variable. Give an example.
2. What are increment and decrement operators in C? Give example.
3. Define macro.
4. How will you compare two strings in C? Explain.
5. What is a self-referential structure?
6. What is a union?
7. Define linked list.
8. List the applications of stack
9. Define tree.
10. Define Degree of a tree.

PART B — (5 × 5 = 25 marks)

Answer ALL the Questions choosing either (a) or (b)

11. (a) Define constant. Explain the types of constant available in C.

Or

- (b) Distinguish between while and do.. while statement with example

12. (a) Write in detail about arithmetic operations on pointers with example.

Or

- (b) Write the program to find the factorial of a given number using recursion.

13. (a) Give the difference between the structure and union.

Or

- (b) How to create a data file in C? Give an example.

14. (a) How will you represent Single Linked list in arrays? Explain.

Or

- (b) Define stacks and explain stack implementation concepts using arrays.

15. (a) Define : (i) Binary Tree (ii) Complete Binary Tree.

Or

- (b) List out and explain the applications of tree.

PART C — (3 ×10 = 30 marks)

Answer any THREE questions.

16. Define Operator and explain the various types of operators available in C.
17. Write a C program to multiply two given matrices A and B of size  $3 \times 3$ .
18. What is an array of structure? Declare a variable as array of structure and initialize it with an example.
19. Discuss the program in C to create, insert and display the elements in a doubly linked list.
20. Explain in detail about different binary tree traversal techniques with example.

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**D-4760**

**Sub. Code**

**12933/13133**

DISTANCE EDUCATION

B.Sc.(Information Technology)/B.Sc.(I.T.) (Lateral Entry)  
DEGREE EXAMINATION, DEC 2020.

Third Semester

INTERNET AND JAVA PROGRAMMING

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 ×2 = 20 marks)

Answer ALL questions.

1. Define : FTP
2. What are the data types available in Java?
3. Name any four search engines.
4. Define: UseNet newsgroup.
5. What is meant by Polymorphism?
6. Define: Array.
7. What is meant by Package?
8. How to kill a thread?
9. Name any two exceptions.
10. Define: I/O stream.

PART B — (5 × 5 = 25 marks)

Answer ALL the Questions choosing either (a) or (b)

11. (a) What is meant by URL? Explain its structure with examples.

Or

- (b) Write a note on IRC.

12. (a) List and explain the types of tokens in Java.

Or

- (b) What are the types of variables in Java with respect to scope?

13. (a) Explain the various access specifiers.

Or

- (b) Write a simple Java program to demonstrate two dimensional arrays.

14. (a) Explain the ways to implement interfaces.

Or

- (b) Discuss the methods associated with threads.

15. (a) Explain the states in the life cycle of Java applets.

Or

- (b) Write a note on byte stream classes.



PART C — (3 ×10 = 30 marks)

Answer any THREE questions.

16. Elaborate on the concept of World Wide Web.
  17. List and explain the types of operators and its priorities.
  18. Write a Java program to manipulate the personal details of 20 employees of a Bank using array of objects.
  19. Explain the operations with respect to packages in Java.p
  20. List and explain the nature of various built-in exceptions in Java.
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**D-4761**

**Sub. Code**

**12943/13143**

DISTANCE EDUCATION

B.Sc. (IT)/B.Sc. (IT) (Lateral Entry) DEGREE EXAMINATION,  
DEC 2020.

Fourth Semester

OPEN SOURCE SOFTWARE

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 ×2 = 20 marks)

Answer ALL questions.

1. What do you mean by open source?
2. Define operating system.
3. What is a Query?
4. Expand DDL and DML.
5. Write a note on PHP.
6. Give the syntax for conditional operator in PHP.
7. What are the benefits of PYTHON?
8. Define Exception.
9. Give PERL parsing rules.
10. Define Package.

PART B — (5 × 5 = 25 marks)

Answer ALL the Questions choosing either (a) or (b)

11. (a) What are the advantages of Open Sources?

Or

- (b) Describe about Cloning in LINUX.

12. (a) Explain record selection technology in MYSQL.

Or

- (b) Write about metadata.

13. (a) What are all the data types available in PHP?

Or

- (b) Write a PHP program to find NCR using Functions.

14. (a) Describe about Dictionaries in PYTHON.

Or

- (b) Explain Execution environment of PYTHON.

15. (a) Describe IF structures of PERL in detail.

Or

- (b) Write about modules in PERL.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe LINUX Kernel in detail.
17. How will you sort your query results? Explain.
18. Explain Arrays in PHP with example.

19. (a) Give a detailed note on WHILE loop in PYTHON.  
(b) Write a PYTHON program to reverse a given number.
  20. Explain working with Files in PERL.
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**D-4762**

**Sub. Code**

**12951/13151**

DISTANCE EDUCATION

B.Sc. IT/B.Sc. (IT) (Lateral Entry) DEGREE EXAMINATION,  
DEC 2020.

Fifth Semester

DISCRETE MATHEMATICS

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Write the rules of inference.
2. Define null set.
3. What is partial ordering?
4. Define the term composite relation.
5. What is commutative?
6. How will you define left invertible?
7. Write about field.
8. What is isomorphism?
9. Define the term graph.
10. Write about conditional probability.

PART B — (5 × 5 = 25 marks)

Answer ALL the questions choosing either (a) or (b)

11. (a) Write truth table and draw network diagram using logic gates  $(a \cdot \bar{b}) + (\bar{a} \cdot b)$ .

Or

- (b) Show that  $R \wedge (P \vee Q)$  is a valid conclusion from the premises  $P \vee Q$ ,  $Q \rightarrow R$ ,  $P \rightarrow M$  and  $\neg M$ .

12. (a) Let  $X = \{1, 2, 3, 4\}$  and  $R = \{(1, 1), (1, 4), (4, 1), (4, 1), (4, 4), (2, 2), (2, 3), (3, 2), (3, 3)\}$ ; write the matrix of  $R$  and sketch its graph.

Or

- (b) Let  $A$  be a given finite set and  $\rho(A)$  its power set. Let  $\subseteq$  be the inclusion relation on the elements of  $\rho(A)$ . Draw Hasse diagram of  $\langle \rho(A), \subseteq \rangle$  for (i)  $A = \{a\}$ , (ii)  $A = \{a, b\}$  (iii)  $A = \{a, b, c\}$ .

13. (a) Define characteristics function of a set and their properties.

Or

- (b) Let  $F_x$  be the set of all one to one onto mapping from  $X$  onto  $X$ , where  $X = \{1, 2, 3\}$ . Find all the elements of  $F_x$  and find the inverse of each element.

14. (a) Let  $(s, *)$  be a given semigroup there exists a homomorphism  $g: s \rightarrow s^s$ , where  $(s^s, \circ)$  is a semigroup of functions from  $s$  to  $s$  under the operation of (left) composition.

Or

- (b) Show that every cyclic group of order  $n$  is isomorphic to the group  $(Z_n, +_n)$ .

15. (a) In a simple diagraph, the length of any elementary path is less than or equal to  $n-1$ , where  $n$  is the number of nodes in the graph. Similarly the length of any elementary cycle does not exceed  $n$ .

Or

- (b) State and prove multiplication theorem of expectation.

PART C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Obtain a conjunctive normal form  

$$\neg(P \vee Q) \leftrightarrow (P \wedge Q) \leftrightarrow (\neg(P \vee Q) \rightarrow (P \wedge Q)) \wedge (P \wedge Q).$$
17. Let  $R = \{(1, 2), (3, 4), (2, 2)\}$  and  $S = \{(4, 2), (2, 5), (3, 1), (1, 3)\}$   
 find  $R \circ S, S \circ R, R \circ (S \circ R), (R \circ S) \circ R, R \circ R, S \circ S,$   
 $R \circ R \circ R.$
18. Let  $X = \{1, 2, 3\}$  and  $f, g, g$  and  $s$  be functions from  $X$  to  $X$   
 given by  $f = \{(1,2), (2,3), (3,1)\}, g = \{(1, 2), (2,1), (3,3)\},$   
 $h = \{(1,1), (2,2), (3,1)\}, s = \{(1,1), (2,2), (3,3)\}$  find  
 $f \circ g; g \circ f; f \circ h \circ g; s \circ g; g \circ s; s \circ s; f \circ s.$
19. State and prove Lagrange's theorem.
20. State and prove Baye's theorem.

**D-4763**

**Sub. Code**

**12952/13152**

DISTANCE EDUCATION

B.Sc. (IT)/B.Sc. (IT) (Lateral Entry) DEGREE EXAMINATION,  
DEC 2020.

Fifth Semester

OPERATING SYSTEMS

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define OS with an example.
2. What are the advantages of Multiprocessor Systems?
3. What are the types of Buffer? Explain.
4. What is Thread?
5. What is Multitasking?
6. List out any two methods for handling Deadlocks.
7. Define paging.
8. Where does the Cache Memory reside?
9. What is meant by Page Fault?
10. What is meant by file system mounting?



PART B — (5 × 5 = 25 marks)

Answer ALL the Questions choosing either (a) or (b)

11. (a) Explain about Operating System Structure.

Or

- (b) Write short notes on Operating System Design.

12. (a) What are the Operations on Processes? Explain.

Or

- (b) Discuss about Scheduling Criteria.

13. (a) Write short notes on Monitors.

Or

- (b) Explain about the Methods for Handling Deadlocks.

14. (a) Illustrate paging with neat diagram.

Or

- (b) Explain and draw a neat diagram for Contiguous Memory Allocation.

15. (a) Explain the Structure of File System.

Or

- (b) Write short notes on Disk Management.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elaborate System Calls and its types.

17. Briefly explain Scheduling Algorithms.

18. Explain in detail about Deadlock Prevention.
  19. Describe about Segmentation.
  20. Give detailed explanation of Disk Scheduling.
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**D-4764**

**Sub. Code**

**12953 /13153**

DISTANCE EDUCATION

B.Sc. (IT)/B.Sc. (IT) (Lateral Entry) DEGREE  
EXAMINATION, DEC 2020.

Fifth Semester

RELATIONAL DATABASE MANAGEMENT SYSTEM  
(RDBMS)

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is data abstraction in DBMS?
2. Define query processor.
3. What is logical database design?
4. Define tuple relational calculus.
5. What is schema refinement?
6. Define lossless join decomposition.
7. List out transaction states.
8. What is the responsibility of the buffer manager?
9. Define clustered index.
10. What is ISAM?

PART B — (5 × 5 = 25 marks)

Answer ALL the Questions choosing either (a) or (b)

11. (a) Discuss instances and schemas.

Or

- (b) Describe database design and ER diagrams.

12. (a) Explain types of integrity constraints with example.

Or

- (b) Write about domain relational calculus in detail.

13. (a) Illustrate second normalization.

Or

- (b) Discuss Multi-valued dependencies.

14. (a) Explain Advance recovery systems.

Or

- (b) Illustrate the types of Protocols.

15. (a) Elaborate Hash Based Indexing.

Or

- (b) Describe Primary Indexes.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the conceptual design for large enterprises.

17. Briefly explain relational algebra.

18. What is NULL value? Explain the comparison using null values.
  19. Explain transaction concept in DBMS.
  20. Elaborate B+ Trees in detail.
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**D-6403**

**Sub. Code**

**12961/13161**

DISTANCE EDUCATION

B.Sc. (IT)/B.Sc. (IT)(Lateral) DEGREE EXAMINATION,  
DECEMBER 2020.

Sixth Semester

.NET PROGRAMMING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is a class library?
2. List the components of .NET framework.
3. What are the layouts available?
4. Write down the purpose of message box.
5. Write a note on picture box.
6. How will you assign shortcut keys?
7. List any 4 string manipulation functions.
8. Define MDI.
9. What is a query?
10. Give the syntax for creating a ADO.NET connection.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What are the operators available in .Net?

Or

- (b) Write a .Net program to find the Sum of N numbers.

12. (a) Explain different Window styles available in .Net.

Or

- (b) Write about Message box.

13. (a) Give a note on Rich Text Box and Picture Box.

Or

- (b) Explain in detail about assigning short cut keys and popup menus.

14. (a) Differentiate Pass by Value and Pass by Reference.

Or

- (b) Explain any five mathematical functions available in .Net.

15. (a) How will you update records to a student database? Explain.

Or

- (b) Write .Net code for electricity bill processing.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe Common Languages Runtime environment in detail.
  17. Differentiate procedure oriented, object oriented and event driven programming.
  18. Explain Menus in detail with all features.
  19. Write a detailed noted on Exception handling with an example.
  20. Explain populating data in ADO.NET.
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**D-6404**

**Sub. Code**

**12962/13162**

DISTANCE EDUCATION

B.SC. (IT)/B.SC. (INFORMATION TECHNOLOGY)  
(LATERAL ENTRY) DEGREE EXAMINATION,  
DECEMBER 2020.

Sixth Semester

SYSTEM ANALYSIS AND DESIGN

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define : DSS.
2. What are the types of CBIS?
3. Define : System Analyst.
4. What is meant by SRS?
5. List the types of feasibility study.
6. Define : DFD.
7. What is meant by logical design?
8. What are the uses of Form Control?
9. Define : Database.
10. What is adoptive maintenance?

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

11. (a) Discuss the characteristics of system.

Or

- (b) Write a note on the types of system.

12. (a) Write a note on the Preliminary investigations.

Or

- (b) Discuss the uses of various analysis tools.

13. (a) Explain the process of form design.

Or

- (b) Explain the types of forms.

14. (a) Write a note on the methods of file organization.

Or

- (b) Discuss the concept of Quality Assurance.

15. (a) Explain the various conversion methods.

Or

- (b) Write a note on financial consideration during system maintenance.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the phases of System Development Life Cycle.
17. Explain the process of system analysis.

18. Discuss the various methods of system design.
  19. Discuss the various types of Databases.
  20. Describe the concept of system evaluation and implementation.
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**D-6405**

**Sub. Code**

**12963/13163**

DISTANCE EDUCATION

B.Sc. (IT)/B.Sc. (Information Technology) (Lateral entry)  
DEGREE EXAMINATION, DECEMBER 2020.

Sixth Semester

MULTIMEDIA AND ITS APPLICATIONS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define: Hypermedia.
2. Expand: MPEG.
3. Define: Browser.
4. List any two types of video signals.
5. What is meant by data compression?
6. Define: Arithmetic coding.
7. List the names of any two image compression algorithms.
8. What are Multimedia Networks?
9. Define: ATM Networks.
10. How is the quality of multimedia data measured?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss the concept of WWW.

Or

- (b) Explain the data representation techniques.

12. (a) Write a note on the color models in videos.

Or

- (b) Explain the concept of quantization of audio.

13. (a) Explain the various data compression methods.

Or

- (b) Discuss the limitations of data compression and how it is overcome.

14. (a) Write a note on motion compression.

Or

- (b) Discuss the basic audio compression techniques.

15. (a) Explain the characteristics of multimedia networks.

Or

- (b) Write a note on MOD.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the various color models in images and videos.
17. Explain the process of Digitization and Transmission of audio.

18. Explain the various lossless data compression algorithms.
  19. Describe the various audio compression techniques in detail.
  20. Elaborate on multimedia over ATM Networks.
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