F–6415

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

Computer Science and Information Technology

PRINCIPLES OF INFORMATION TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   Define : Computer Technology.

2.   What do you mean by connectivity?

3.   Define :

     (a)   Cell

     (b)   Range.

4.   What are the two advantages of database software over organizing files?

5.   What is netiquette and why is it important?

6.   What are the factors affecting data transmission?

7.   What do you mean by compression and decompression?

8.   Define the terms :

     (a)   Accuracy

     (b)   Privacy

9.   What do you mean by management information system?

10. Define : Program.

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) How do digital data and analog data differ and what does a modem do? Describe.

    Or

    (b) Explain the three directions of computer development.

12. (a) How a spreadsheet organized? Describe.

    Or

    (b) What is a user interface? Explain the common features of user interface.

13. (a) What are the various parts of a network? Explain.

    Or

    (b) Explain the basics of how the Internet works.

14. (a) Explain the basic concepts of file management.

    Or

    (b) What is DBMS? Write down the features of DBMS.

15. (a) What are the characteristics of MIS? Explain.

    Or

    (b) Compare machine and assembly language.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. What are the five developments growing out of the fusion of computers and communications? Explain.

17. Explain the features of word processing software.

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F–6415

18. Discuss the telephone and video related communication services.

19. What are the types of secondary storage devices? Explain any two.

20. Explain the six phases of system analysis design.

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F–6415

F–6562

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

First Semester

Computer Science and Information Technology

Elective: PC MAINTENANCE AND TROUBLE SHOOTING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer All questions.

1. Who controls PC hardware?

2. What is the use of logic probes?

3. What is the need for expansion slots?

4. Distinguish between RAM and ROM.

5. Define the term "Form Factor".

6. Write down the features of DVD-ROM.

7. What is POST?

8. What is network interface diagnostics?

9. Define: Operating system.

10. What is the safe mode in Windows?

Part B (5 × 5 = 25)

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

11. (a) What are the differences between PC/XT and AT system? Explain.

Or

(b) What is PC? Describe the birth of the PC.

12. (a) What are the types of system buses? Explain.

Or

(b) Explain the components inside CD-ROM Drive.

13. (a) What are obsolete form factors used in motherboard? Explain.

Or

(b) Explain briefly about the general system cleaning.

14. (a) Explain the features of data recovery utilities.

Or

(b) Write a short note SCANDISK.

15. (a) What are the components of ROM BIOS? Explain.

Or

(b) Write down the basic trouble shooting guidelines.

F–6562

Part C (3 × 10 = 30)

Answer any Three questions.

16. Discuss the components used in building a typical PC.

17. Write down the features of audio adapter.

18. Explain about the upgrading by ROM BIOS.

19. What are the types of diagnostic software? Explain.

20. Discuss briefly about the DOS file space allocation.

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M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Computer Science and Information Technology

PRINCIPLES OF COMPILER DESIGN

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What is the purpose of lexical analyzer?

2.   What are the cousins of compiler?

3.   What is an ambiguous grammar? Give an example.

4.   Why SLR and LALR are more economical to construct than canonical LR?

5.   Differentiate between abstract and concrete syntax.

6.   Define: Type System.

7.   What are the limitations of using static allocation?

8.   Give the structure of general activation record.

9.   Define: Basic Block.

10. What are the advantages and disadvantages of register allocation and assignments?

Part B   (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a)   Explain the uses of compiler-construction tools.

           Or

     (b)   Describe the simple approach to the design of lexical
           analyzer.

12. (a)   Define: Symbol table. What are the capabilities of a
           symbol table?

           Or

     (b)   What is Top-down parsing? Explain.

13. (a)   Write a short note on Type checking system.

           Or

     (b)   Explain   the   syntax-directed   definition   for
           constructing a syntax trees.

14. (a)   What are the two standard storage allocation
           strategies? Explain.

           Or

     (b)   Explain the syntax directed translation for Boolean
           expression.

15. (a)   Write the algorithm for constructing the natural
           loop of a back edge.

           Or

     (b)   What are the problems in code generation? Explain.

F–6563

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What are the phases involved in compiler construction? Explain.

17. What is a shift-reduce parser? Explain in detail the conflicts that may occur during shift- reduce parsing.

18. Write the unification algorithm and explain it.

19. What are the various methods of implementing three-address statements? Explain

20. Explain the various concepts involved in code optimization.

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F–6563

F–6565	Sub. Code
	7MCI3E3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Computer Science and Information Technology

Elective — WEB TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What is HTML?

2.   List out the attributes of <img> tag.

3.   Define: DOM.

4.   Write down the four principles of Ajax.

5.   What is Dynamic HTML?

6.   What is null value in JavaScript?

7.   What are the disadvantages of POST method?

8.   What is the purpose of GET method?

9.   List out any four Perl functions which operate on scalars.

10.   Distinguish between scalar and array in Perl.

Part B   (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are cascading style sheets and how are they coded? Explain them with an example.

Or

(b) Write a HTML program to print any message using ordered list.

12. (a) How to create an XML Schema? Explain.

Or

(b) Explain how handling Dynamic HTML with Ajax.

13. (a) What are the relational and bitwise operators in JavaScript? Give examples.

Or

(b) What are the benefits and problems with JavaScript?

14. (a) What are the eight data types supported by PHP? Give examples.

Or

(b) Explain the features of MYSQL.

15. (a) What is subroutine? Explain.

Or

(b) Explain how file system work in Pre Hyper Processing.

2   **F–6565**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What are the essential HTML tags for a page? Explain.

17. What are three control structures of XML? Explain.

18. Write a JavaScript function to display current date and time using data object.

19. Explain any ten PHP array functions.

20. What are the operators supported by Perl? Give examples.

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F–6565

F–6567		Sub. Code
		7MCI3E6

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Computer Science and Information Technology

Elective — MOBILE COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What do you mean by device portability?

2.   Define: Mobile networking.

3.   What is the primary goal of GSM?

4.   What is multiplexing?

5.   Define: (a) Foreign Agent (b) Home Agent

6.   What is authentication?

7.   What is unicast routing?

8.   Define: Decapsulation.

9.   What advantages does the use IPv6 offer for mobility?

10.   What is the role of a WAP?

Part B   (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the role of IETF in mobile networking.

Or

    (b) Write a short note on wireless technologies.

12. (a) What are the advantages and disadvantages of cellular systems? Explain.

Or

    (b) What are the four possible handover scenarios in GSM? Explain.

13. (a) What are the two different ways registration can be done? Explain.

Or

    (b) Discuss in detail about the Agent Advertisement and Agent Solicitation.

14. (a) Explain the mechanism of encapsulation.

Or

    (b) Explain briefly about the route optimization.

15. (a) Discuss the overview of the WAP architecture.

Or

    (b) Write a short note on reverse tunneling.

2   **F–6567**

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16.   Explain the architecture of wireless network.

17.   Discuss the functional architecture of a GSM system.

18.   Explain about the router discovery protocol.

19.   Differences between unicast, broadcast and multicast.

20.   Discuss in detail about the Dynamic host configuration Protocol.

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F–6567

F–5512	Sub. Code
	7MCI1C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Computer Science and Information Technology

PROGRAMMING IN C

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   How is the character constant represented in C?

2.   Illustrate the use of ternary operator.

3.   What are the characteristics of arrays?

4.   What is the wrong with the declaration int matrix (12)(13);?

5.   State the rules that should be followed while defining user-defined functions.

6.   What is an auto variable? How is it declared and initialized?

7.   Write down any two advantages of a pointer.

8.   How is a pointer initialized?

9.   Define: File. What does opening of a file mean?

10.   What is dynamic memory allocation? How does it help in building complex programs?

Part B   (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the structure of a C program.

Or

(b) Write a C program to find out the prime numbers from 50 to 100 using while loop.

12. (a) Write a C program to find the sum of squares of elements on the diagonal of a square matrix.

Or

(b) Explain any five string functions with examples.

13. (a) Write a C program to find the factorial of a given positive integer using function.

Or

(b) Compare structure and union.

14. (a) Explain about the away of pointers.

Or

(b) Write a C program to illustrate a pointer to a function.

15. (a) Write a short note on command line arguments.

Or

(b) Write a C program that copies one file to another, replacing all lower characters by their upper case equivalents.

F–5512

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the various types of operators in C.

17. Write C program to multiply two matrices.

18. Explain how structures are defined in C and how they are passed to function.

19. Write a C program to reverse the string using pointers.

20. Two data files LADIES and GENTS contain sorted list of names of girls and boys in a class respectively. Write a C program to produce a third file STUDENTS which holds the merged list of the two given files.

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F–5513	Sub. Code
	7MCI1C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Computer Science and Information Technology

DATA STRUCTURE AND ALGORITHMS

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   Define the term "Data Structure".

2.   What is Traversing?

3.   What is the purpose of circular queue?

4.   Find the postfix form of the following: A+B*C+(D/E)*G.

5.   Define: Binary Tree. Give an example.

6.   What is Hashing?

7.   Distinguish between linear search and binary search.

8.   State the Divide and Conquer method.

9.   Define: Theta notation.

10.   Write down the properties of an algorithm.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What is searching? Explain.

Or

(b) Write the procedure for merging lists and explain it.

12. (a) What is a Stack? Explain the various applications of stacks.

Or

(b) What is doubly linked list? Explain.

13. (a) What is binary search tree? Explain with examples.

Or

(b) Explain the inorder traversal of binary tree.

14. (a) What is sorting? Write an algorithm for bubble sort.

Or

(b) Write an algorithm for insertion sort and explain it.

15. (a) Why do we need algorithm analysis? Explain.

Or

(b) How do you find the complexity of an algorithm? What is the relation between the time and space complexities of an algorithm?

F–5513

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write the procedures to insert and delete an element in a list.

17. What is a queue? Explain the array implementation of queues.

18. What are the types of binary tree? Explain.

19. Write a Quick Sort algorithm and explain it.

20. Explain the basic asymptotic efficiency classes with examples.

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F–5513

F–5514		Sub. Code
		7MCI1C4

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Computer Science and Information Technology

COMPUTER FUNDAMENTALS AND ARCHITECTURE

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Find the decimal number for the following binary number: 11011

2. Expand:

   (a) ASCII (b) EBCDIC.

3. What is meant by a don't-care condition on a Karnaugh map? How is it indicated?

4. What is the function of decoder?

5. What is a flip-flop?

6. Draw the truth table for Half-Adder.

7. Write the general form of Instruction Format.

8. Define: Register Transfer Language.

9. State the advantages of cache memory.

10. Distinguish between Peripherals and CPU.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the digits used in the octal number system? What is the octal number for binary 1100? What is the decimal number for binary 11101?

Or

(b) Convert the decimal number 500 into binary and octal.

12. (a) What is the Demultiplexer? Draw the logic circuit for 1-to-16 demultiplexer.

Or

(b) State and prove Demorgan's Theorem of Boolean algebra.

13. (a) What is a shift register? Explain

Or

(b) Write a short note on the binary parallel adder.

14. (a) What are data transfer and data manipulation instructions? Describe.

Or

(b) What is stack? Explain about the stack organization.

F–5514

15. (a) Describe the sequence of operations of CPU-IOP Communication.

Or

(b) Explain in detail about the asynchronous data transfer.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Convert the following hexadecimal numbers to binary numbers:

(a) E5 (b) B4D (c) 7AF4

17. Simplify the Boolean function using Karnaugh Map.

F(w,x,y,z)= Σ(0,1,2,4,5,6,8,9,12,13,14).

18. Write a short note on

(a) Half-Subtractor (b) Full-Subtractor

19. Explain any five addressing modes of an instruction.

20. Discuss in detail about Hardware organization of Associative memory.

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3 **F–5514**

F–5515	Sub. Code
	7MCI1E2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

First Semester

Computer Science and Information Technology

ELECTIVE–OPERATING SYSTEM

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is an operating system?

2. Differentiate between page and segment.

3. What is the process control block?

4. What are the major differences between deadlock, starvation and race?

5. What is the central goal of most multiprocessing systems?

6. Define the term "Semaphore".

7. What is the difference between file and database?

8. Define: Data Compression.

9. Write the design goals of Unix system.

10. What is a pipe in Unix?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the four subsystems of an operating system? Explain.

    Or

    (b) What are the advantages and disadvantages of virtual memory?

12. (a) What are the criteria for process scheduling policy? Explain.

    Or

    (b) Explain any two cases of deadlock.

13. (a) Discuss about the master/slave multiprocessing configuration.

    Or

    (b) Explain briefly about the producers and consumers problem.

14. (a) What are the responsibilities of file manager? Describe.

    Or

    (b) Compare network and distributed operating system.

15. (a) Explain the major advantages of Unix system.

    Or

    (b) Describe the uses of any five user commands in Unix system.

2 **F–5515**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What are memory allocation schemes? Explain any two.

17. Discuss any two non preemptive process scheduling algorithms.

18. Explain about the sequential access and direct access storage devices.

19. What are the various file organization schemes? Explain.

20. Discuss about the memory management in Unix system.

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3 **F–5515**

F–5523	Sub. Code
	7MCI3C2

M.Sc DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Computer Science and Information Technology

SOFTWARE ENGINEERING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is the fundamental problem of software engineering?

2. What is the purpose of design phase of software development?

3. Define: Software Requirement Specification.

4. Write down the rules to construct regular expression.

5. Distinguish between verification and validation.

6. Define the term "Risk".

7. What is a module?

8. What are the factors affecting coupling?

9. What is the goal of software testing?

10. What do you mean by reliability?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the effort distribution with phases of software development.

Or

(b) What are software metrics? What is the role of metrics in project management? Explain.

12. (a) What are the characteristics of SRS? Explain.

Or

(b) Write a short note on Data Dictionary and Decision Table.

13. (a) Explain the two basic philosophies have evolved for organizing a team.

Or

(b) What are the three categories of software risk? Describe.

14. (a) Explain about the software design principles.

Or

(b) Write a short note on design review.

15. (a) Explain briefly about the unit testing and integration testing.

Or

(b) Define error, fault, and failure. What is the difference between a fault and a failure? Does testing observe faults or failures?

2 **F–5523**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What are the phases involved in Waterfall Model? Discuss.

17. What is prototyping? What are the two approaches to prototyping? Explain.

18. Discuss in detail about the COCOMO Model.

19. What is cohesion? What are the different levels of cohesion? Explain.

20. Discuss three different approaches to structural testing.

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F–5523

F–5524		Sub. Code
		7MCI3C3

M.Sc DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Computer Science and Information Technology

VISUAL PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. List out the major components of CLR.

2. What are the benefits of assemblies over predecessors?

3. How to use a check box control?

4. What is the use of dynamic array?

5. How to define a form in HTML?

6. What is the use of tracing?

7. Differentiate between overloading and overriding.

8. Define: Polymorphism.

9. Write down any two characteristics of ADO.NET.

10. What is data binding?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) What is CTS? Explain its use.

Or

(b) List out any five namespaces with its description.

12. (a) List the twelve basic data types used in VB .NET. Explain with examples.

Or

(b) Explain the purpose of using graphics and file handling controls.

13. (a) What are the file types of ASP .NET? Describe.

Or

(b) Discuss the overview of Ajax controls.

14. (a) Explain the three steps involved to implement forms-based security.

Or

(b) Write a short note on abstraction and encapsulation.

15. (a) What are the types of SQL statements? Explain with examples.

Or

(b) Explain about how to display data using Data Grid.

F–5524

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss the major components of the .NET Framework.

17. Explain about the string handling functions and methods in VB .NET.

18. What are the five types of validation controls? Explain.

19. What are windows authentication methods? Explain.

20. Discuss in detail about the components of ADO.NET.

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F–5524

F–5525		Sub. Code
		7MCI3E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Computer Science and Information Technology

ELECTIVE–MULTIMEDIA AND ITS APPLICATIONS

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   Define the term "Multimedia".

2.   What is Virtual Reality?

3.   What are the three approaches to reducing kernel interrupt latency?

4.   Differentiate between raster and vector image.

5.   What are the uses of audio in computer applications?

6.   Define: (a) Aspect ratio (b) Resolution.

7.   What are Broadband services?

8.   What is Galatea?

9.   What is DNS?

10.   Define: Web Browser

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the various applications of multimedia.

Or

(b) Define the two computer platforms most often used in multimedia and how their capabilities affect development and development choices.

12. (a) Write down the characteristics of multimedia system services.

Or

(b) What are the elements of text? Describe.

13. (a) What is digital audio signal processing? Explain.

Or

(b) Draw the block diagram of a three-sensor RGB color video camera and explain it.

14. (a) What are media and session services? Describe.

Or

(b) Write a short note on teleconferencing system.

15. (a) What are the functions of Internet? Explain.

Or

(b) Explain the different things to remember an assembling a multimedia production team.

2 **F–5525**

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the functions of any four multimedia hardware devices.

17. What are elements of graphics? Explain.

18. Explain about the time-domain sampled and transform representation of sound.

19. Describe the review the requirements on health-care applications.

20. What are the roles and functions of the different members of a multimedia team? Explain.

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3   **F–5525**

F–5528		Sub. Code
		7MCI3E4

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

Third Semester

Computer Science and Information Technology

ELECTIVE– DATAMINING AND WAREHOUSING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What is Data Mining?

2.   Define: Machine learning.

3.   List out the four major features of data warehouse.

4.   Define: Metadata.

5.   Why preprocess the data?

6.   What is data generalization?

7.   What about classification accuracy?

8.   Define: Prediction.

9.   What is clustering?

10.   What is a time-series database?

Part B   (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a)   Explain the various steps in data mining process.

                        Or

    (b)   Describe the taxonomy on data mining tasks.

12. (a)   Write a short note on star schema and snowflake schema.

                        Or

    (b)   What are OLAP operations in the multidimensional data model? Explain.

13. (a)   What are the strategies for data reduction? Describe.

                        Or

    (b)   Write a short note on association rule mining.

14. (a)   How are decision trees used for classification?

                        Or

    (b)   What are the two types of hierarchical clustering methods? Explain.

15. (a)   What are the types of data in cluster analysis? Explain.

                        Or

    (b)   How is web usage mining different from web structure mining and web context mining?

                    2   **F–5528**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss the overview of the data mining techniques.

17. Explain about the three-tier data warehousing architecture.

18. What is data transformation? Describe.

19. Discuss briefly about the back propagation algorithm.

20. Explain the two most commonly used partition clustering methods.

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F–5528