18. Discuss the different strategies for handling Deadlocks.

19. Discuss the components of I/O Subsystem and management of I/O requests.

20. Discuss the contiguous storage and noncontiguous storage physical storage allocation.

S.No. 8221 **16 SCCCA 6/16 SCCCS 8/ 16 SCCIT 7**

(For candidates admitted from 2016–2017 onwards)

B.C.A/B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Part III — Computer Applications/Computer Science/ Information Technology — Major

OPERATING SYSTEMS

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$)

Answer ALL questions.

1. Define Real-time system.

2. Define Object-Oriented Philosophy.

3. What is meant by dynamic partitions?

4. What is meant by internal fragmentation?

5. Define Multiprogramming.

6. What is mean by loosely coupled configuration?

7. Define Latency, and Seek time.

8. What is meant by I/O Scheduler?

9. List out any two file attributes.

10. What is indexed sequential record organization?

SECTION B — (5 × 5 = 25)

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

11. (a) Discuss the functions of Processor Management and Device Management subsystem.

Or

(b) Explain the various types of operating systems.

12. (a) Explain the single-user contiguous scheme with diagram.

Or

(b) Discuss the importance of deallocation of memory in a dynamic partition system.

13. (a) Explain the goals of process scheduling policies in single-core CPUs.

Or

(b) Discuss the advantages and disadvantages of process scheduling algorithms that are preemptive versus those that are nonpreemptive.

14. (a) Differentiate the sequential and direct access media.

Or

(b) How to calculate the access times for fixed-head drives of magnetic disk drive?

15. (a) Comment on interaction with the file manager.

Or

(b) Compare the sequential and direct file access.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain the impact of the evolution of computer hardware and the accompanying evolution of operating system software.

17. Explain the basic functionality segmented memory allocation methods.

S.No. 8217 **16 SCCCA 3/16 SCCCS 3/ 16 SCCIT 4**

(For candidates admitted from 2016–2017 onwards)

B.C.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Part III — Computer Applications/Computer Science/Information Technology – Major

PROGRAMMING IN JAVA

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. What is OOPs?

2. Is Java case sensitive? What is meant by case sensitive?

3. What are Primitive data types?

4. Differentiate break and continue statements.

5. What is the difference between superclass and subclass?

6. Give any two example for Java built-in packages.

7. What are the states associated in the thread?

8. Write the usages of the wait(), and notify All() methods.

9. What is meant by Byte Stream Classes?

10. What is an applet?

PART B — (5 × 5 = 25)

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

11. (a) Discuss the features of Java.

Or

(b) Discuss how java is differs from C++.

12. (a) Discuss briefly the operators used in Java programming with example.

Or

(b) Explain the character extraction string operations with methods.

13. (a) How to declare an interface, write syntax? Explain with example.

Or

(b) What are access modifiers in JAVA? Explain with example.

14. (a) Explain the constructors and methods in throwable class with example.

Or

(b) What is Thread priorities and Thread scheduling? Explain.

15. (a) Explain the reading/writing characters and bytes of data using Stream.

Or

(b) What is the lifecycle of an applet? Explain.

PART C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain the following :

(a) Difference between OOP and Procedural Oriented Language.

(b) Java source file structure.

17. Discuss the various control statements in Java language.

18. Explain the procedure to implement the packages.

19. Explain the basics of an exception handing with example code.

20. Explain briefly about the operations of Random Access Files.

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S.No. 8219 **16 SCCCA 4/**
16 SCCIT 9

(For candidates admitted from 2016–2017 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Part III – Computer Application/
Information Technology – Major

DATABASE SYSTEMS

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. Define Database Management System.

2. What is Data Inconsistency?

3. Define Schema of a Relation.

4. What are the two extended relational algebra operations?

5. What are the three important clauses of SQL expression?

6. What is an inner join in SQL?

7. What are the two types of relational calculus in DBMS?

8. Define Entity Sets.

9. What is Normalization?

10. Why is BCNF better than 3NF?

PART B — (5 × 5 = 25)

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

11. (a) Explain the three levels of data abstraction.

Or

(b) Discuss the components of storage manager.

12. (a) Compare the entity integrity and referential integrity rules in relational model.

Or

(b) With an example, explain Union relational algebra operations.

13. (a) What are sub quires? Explain with example.

Or

(b) Explain the usage of create view command with example.

14. (a) What is Query-by-Example (QBE)? Explain queries on One Relation.

Or

(b) Explain the mapping cardinalities constraints with diagram

15. (a) Describe the assumptions of atomic domains and first normal form.

Or

(b) Explain briefly the Lossless Decomposition.

PART C — (3 × 10 = 30)

Answer any THREE questions.

16. Describe the usages of Data-Manipulation Language and Data-Definition Language of database system.

17. Discuss the fundamental operations the Relational Algebra.

18. Summarize the various aggregate functions with example.

19. Explain the design of E-R Database schema in detail with example.

20. Discuss the concept of functional dependencies, and how it used to BCNF and third normal forms.

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S.No. 8220 **16 SCCCA 5/**
16 SCCCS 5/16 SCCIT 5

(For candidates admitted from 2016–2017 onwards)

B.Sc./B.C.A. DEGREE EXAMINATION,
NOVEMBER 2022.

Part III – Computer Applications/Computer Science/Information Technology — Major

DATA STRUCTURES AND ALGORITHMS

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. What is the use of Arrays?

2. What is the use of Linked list?

3. Define threaded binary tree.

4. Discuss Spanning trees.

5. What is mean by Heap?

6. Define Binary search tree?

7. Define Greedy method.

8. What is the use of Optimal Merge Patterns?

9. Explain the sum of subsets.

10. Define Graph Coloring.

PART B — (5 × 5 = 25)

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

11. (a) Determine the Queue operations.

Or

(b) Examine the linked lists.

12. (a) Categorize the tree - with example.

Or

(b) Show the shortest path and Transitive closures.

13. (a) Assess the Heap sort Algorithm in detail.

Or

(b) How to finding the Maximum and Minimum of binary search tree?

14. (a) Discuss the Greedy method with example.

Or

(b) Evaluate the Optimal merge patterns in detail.

15. (a) Discover the Back tracking techniques in detail.

Or

(b) Describe the Sum of Sunset technique in detail.

PART C — (3 × 10 = 30)

Answer any THREE questions.

16. Discuss the multiple Stacks and Queue data Structure in detail.

17. Categorize the Binary tree and its Representation.

18. Experiment the Quick Sort with suitable example.

19. Sketch the Knap – sack problem with example.

20. Discuss the 8 Queens problem in detail.

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S.No. 8222 16 SCCCA 7

(For candidates admitted from 2016–2017 onwards)

B.C.A. DEGREE EXAMINATION, NOVEMBER 2022.

Part III — Computer Applications — Major

DIGITAL COMPUTER FUNDAMENTALS

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20)

Answer ALL questions.

1. Write down the base of octal and hexadecimal number system.

2. $(AC)_{16} = (\ ?\ )_2$.

3. State Demorgan's theorem.

4. Write down the truthtable of XOR gate.

5. Define K-map.

6. Write the operation table of Half adder.

7. What is SOP and POS?

8. What is multiplexer?

9. List down any two sequential circuits.

10. What is D flipflop?

SECTION B — (5 × 5 = 25)

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

11. (a) Convert $(1011.1100)_2$ into equivalent octal and hexadecimal.

Or

(b) Write short notes on Error detection and correction codes.

12. (a) What are UBB? Draw its symbol with its truth table.

Or

(b) What are minterms and maxterms? Explain.

13. (a) Simplify $F(a,b,c) = \Sigma(1,3,5,7)$ using K-map.

Or

(b) Explain about rolling the map.

14. (a) Explain the operation of Half subtractor with its function table.

Or

(b) What is multiplexer? Explain with neat diagram.

15. (a) Describe about the operation of R-S flip flop with circuit diagram.

Or

(b) Explain the operation of ripple counter.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

16. Convert $(18.3)_{10}$ into equivalent binary, octal and hexadecimal number.

17. Draw symbol and truth table, Boolean expression of OR, AND, NOT, XOR and XNOR.

18. Implement NAND-NAND circuit for $f(a,b,c) = \Sigma(0,1,3) + d(2,5)$.

19. Explain the functions of full adder circuit with neat diagram.

20. Describe the operation of JK flip flop with its function table.

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S.No. 8224 **16 SMBECA 1:2/ 16 SMBECS 1:1/16 SMBEIT 1:1**

(For candidates admitted from 2016–2017 onwards)

BCA/B.Sc DEGREE EXAMINATION, NOVEMBER 2022.

Part III—Computer Applications/Computer science/Information Technology — Major Based Elective

SOFTWARE ENGINEERING

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20)

Answer ALL questions.

1. Define Software Engineering.
2. What is Process Model?
3. Define Structured Analysis.
4. What is Modularity?
5. What is Hierarchy?
6. Define User Interface Design.
7. What is Software Testing?

8. What is Software Maintenance?

9. Define Open-Source Software Development.

10. What is Social Computing?

SECTION B — (5 × 5 = 25)

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

11. (a) Explain the Steps involved in Requirements Engineering.

Or

(b) Give a brief note on Software Process Models.

12. (a) Discuss about Cohesion.

Or

(b) Explain about Coupling.

13. (a) Explain the Frameworks.

Or

(b) Write short notes on Object Oriented Design.

14. (a) Explain the structural testing with example.

Or

(b) Discuss about Software Coding.

15. (a) Explain General Web Characteristics.

Or

(b) Explain about Cloud Computing.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain various types of Requirements in Requirement engineering.

17. Explain the Function Oriented System Vs Object Oriented System.

18. Explain the user interface design principles in Detail.

19. Explain the types of software testing with Examples.

20. Explain the Emerging Trends in Software Engineering.

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S.No. 8218 **16 SNMECA 1/**
16 SNMECS 1

(For candidates admitted from 2016–2017 onwards)

U.G. DEGREE EXAMINATION, NOVEMBER 2022.

Part IV – Computer Science/Computer Applications — Non Major Elective

WORKING PRINCIPLES OF INTERNET

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. What is mean by URL?
2. Define HTTP.
3. What is mean by FTP?
4. Explain the gateways.
5. What is use of IRC?
6. Define the packets.
7. List out the features of XML.

8. Explain the CGI and DNS.

9. What is the use of virtual reality?

10. Explain the working principles of cryptography.

PART B — (5 × 5 = 25)

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

11. (a) Detail discussion about the TCP/IP in network.

Or

(b) Explain the structure of Switch and Router in detail.

12. (a) What is mean by Point to Point protocol? Explain.

Or

(b) Discuss the IRC working principles.

13. (a) Write down the structure of URL? Explain.

Or

(b) Explain the working principles of gophers in Internet.

14. (a) Discuss the virtual reality with example.

Or

(b) Explain the shockwave in detail.

15. (a) Write a note on pretty good privacy.

Or

(b) Discuss the secure web documents.

PART C — (3 × 10 = 30)

Answer any THREE questions.

16. Explain the physical components of Internet.

17. Discuss about the history of Internet.

18. What is mean by FTP and Telnet? Explain.

19. Discuss the Audio and Video formats in multimedia.

20. Explain the Viruses and hackers are handled in Internet.

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S.No. 8271 16 SCCCS 6/16 SCCIT 6/
16 SCCCA 8

(For candidates admitted from 2016–2017 onwards)

B.Sc/B.C.A. DEGREE EXAMINATION,
NOVEMBER 2022.

Part III — Computer Application / Computer Science/
Information Technology-Major

COMPUTER NETWORKS

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. Write down the Network types?
2. Define Multiplexing.
3. What is mean by Cyclic Codes?
4. Explain the Bluetooth.
5. What is use of Packet Switching?
6. Write short note on Internet Protocol?
7. List out the features of UDP.

8. Explain the TCP timer.

9. What is the use of client server programming?

10. Expand the DNS.

PART B — (5 × 5 = 25)

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

11. (a) Discussion about the Bandwidth utilization.

Or

(b) Explain the structure of Spread Spectrum in detail.

12. (a) What is mean by Cyclic codes? Explain.

Or

(b) Discuss the Satellite network in detail.

13. (a) Write down the packets switching.

Or

(b) What is mean by Internet Protocol? Explain with example.

14. (a) Define the User Datagram Protocol with example.

Or

(b) Explain the TCP windows in detail.

15. (a) Write a note on HTTP? Explain.

Or

(b) Discuss the uses of Email.

PART C — (3 × 10 = 30)

Answer any THREE questions.

16. Discuss the OSI reference model in detail.

17. Explain the Error Deduction and Error Correction in detail.

18. Write down the Network layer services with example.

19. Write down the features of Transport layer in detail.

20. Explain in detail about the Application layers.

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