18/03/25

K25U 0284

Reg. No. : .....

Name : .....

VI Semester B.C.A. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 Admissions)
Core Course
6B17BCA : DESIGN AND ANALYSIS OF ALGORITHM

Time : 3 Hours Max. Marks : 40

PART – A
(Short Answer)

Answer **all** questions : **(6×1=6)**

1. Describe the nature of solutions in algorithm development.
2. How does the choice of data structures influence algorithm design ?
3. What is meant by Backtracking ?
4. What is meant by growth of Functions ?
5. Explain Case 1 of Master's Theorem.
6. Explain how Prim's algorithm works.

PART – B
(Short Essay)

Answer **any 6** questions : **(6×2=12)**

7. Explain the key steps in developing an algorithm.
8. Discuss the Brute Force approach with an example.
9. Define Branch and Bound technique.
10. Explain cost estimation on key operations.
11. Briefly explain dynamic programming.
12. Define Theta notation in brief.

P.T.O.

13. How does the recursion tree method help to solve recurrences ?

14. In Kruskal's algorithm, how are edges selected to form a spanning tree ?

PART – C
(Essay)

Answer **any 4** questions : **(4×3=12)**

15. Define RAM model of computation and why is it used ?

16. Describe the divide-and-conquer approach with example.

17. Explain the various Asymptotic notations.

18. Describe the various types of cost estimations.

19. What is the substitution method ?

20. What is Huffman coding and in which scenarios it is used ?

PART – D
(Long Essay)

Answer **any 2** questions : **(2×5=10)**

21. Explain the significance of considering device capabilities before designing an algorithm.

22. Define Greedy approach with example.

23. Explain the various Graph Problems.

24. What is Strassen's algorithm and what problem does it solve ?

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Sixth Semester B.C.A. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 Admissions)
Core Course
6B18BCA : INTRODUCTION TO COMPILER

Time : 3 Hours Max. Marks : 40

SECTION – A
(Very Short Answers)

Answer **all** the questions. **(6×1=6)**

1. Define a production rule in grammar.
2. What is lexical analyzer ?
3. Write the purpose of a symbol table.
4. What is a transition diagram ?
5. Define a lexeme.
6. What is a context free grammar ?

SECTION – B
(Short Answers)

Write short notes on **any six** of the following questions. **(6×2=12)**

7. What is a basic block ?
8. Differentiate between abstract syntax trees and DAGs.
9. Differentiate between syntax analysis and lexical analysis.
10. Give two examples for syntactic errors.
11. What are reductions ?
12. Write the components of an activation record.
13. What is three address code ?
14. Describe finite automata.

P.T.O.

SECTION – C
(Essay)

Answer **any four** of the following questions. **(4×3=12)**

15. Compare single pass and multi pass compilers.
16. How to eliminate ambiguity from a grammar ?
17. Explain the role of a Parser.
18. Describe static single assignment form in intermediate code generation.
19. Explain type conversion with an example.
20. Compare static versus dynamic allocation.

SECTION – D
(Long Essay)

Answer **any two** of the following questions. **(2×5=10)**

21. Explain error recovery strategies in a parser.
22. Describe the different representations of three-address code with examples.
23. Explain phases of a compiler.
24. What is control and data flow analysis ? Explain it with an example.

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Sixth Semester B.C.A. Degree (C.B.C.S.S.-OBE – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 Admissions)
Core Course
6B19BCA : DATA COMMUNICATION AND NETWORKS

Time : 3 Hours Max. Marks : 40

PART – A
(Short Answer)

Answer **all** questions. **(6×1=6)**

1. What is a point-to-point connection ?
2. Expand TCP/IP.
3. What is a noisy channel in networking ?
4. What do you mean by connectionless service ?
5. Define port number.
6. Define encryption in cryptography.

PART – B
(Short Essay)

Answer **any 6** questions. **(6×2=12)**

7. What is the role of protocol hierarchies in networking ?
8. Briefly explain bus topology.
9. What is a physical layer coding violation ?
10. Compare adaptive and non-adaptive routing algorithms.
11. What is congestion control, and why is it needed ?

P.T.O.

12. Mention addressing mechanisms in the transport layer.

13. What are the main functions of the application layer ?

14. What is traditional cryptography ? Give an example.

PART – C
(Essay)

Answer **any 4** questions. **(4×3=12)**

15. Explain simplex, half duplex and duplex line configuration.

16. Write a note on services provided by the data link layer.

17. Explain token bucket algorithm.

18. Describe three-way-handshake in TCP connection establishment.

19. Briefly explain RSA algorithm.

20. What is DES chaining ? Explain.

PART – D
(Long Essay)

Answer **any 2** questions. **(2×5=10)**

21. Briefly explain synchronous and asynchronous data transmission.

22. Describe TCP/IP reference model with a suitable figure.

23. Explain Dijkstra's shortest path routing.

24. Write a note on the UDP protocol.

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VI Semester B.C.A. Degree (C.B.C.S.S. – O.B.E. – Regular/Supplementary/ Improvement) Examination, April 2025
(2019 to 2022 Admissions)
Discipline Specific Elective
6B20BCA – E04 : CLOUD COMPUTING

Time : 3 Hours Max. Marks : 40

PART – A
(Short Answer)

Answer **all** questions. **(6×1=6)**

1. What are the main types of cloud computing services ?
2. Mention the benefits of using cloud computing.
3. Write any two advantages of Virtualization.
4. What is virtualization and why is it important in cloud computing ?
5. Explain future cloud computing challenges.
6. Describe some of the services provided by Azure.

PART – B
(Short Essay)

Answer **any six** questions. **(6×2=12)**

7. Write any two key benefits of cloud computing.
8. Write about Eras of Computing.
9. Compare parallel and distributed computing.
10. What is the difference between IaaS and PaaS ?
11. Explain the concept of managed execution in virtualization.
12. What are the key components of a Distributed System ?
13. Explain the Cloud Reference Model.
14. Describe the uses of Google AppEngine.

P.T.O.

PART – C
(Essay)

Answer **any four** questions. **(4×3=12)**

15. What are the essential technologies used in cloud computing platforms ?
16. Describe the concept of Distributed Computing.
17. Differentiate between para virtualization and full virtualization using Xen and VMware.
18. Explain the concepts of SaaS.
19. Write the differences between storage service and compute services.
20. What are the key compute services provided by AWS ?

PART – D
(Long Essay)

Answer **any two** questions. **(2×5=10)**

21. Explain the vision of cloud computing.
22. Describe Single-Instruction, Single-Data (SISD) systems.
23. What is the use of Network Virtualization in Cloud Computing ?
24. Explain the features of Microsoft Azure.
