



(Pages : 3)

C – 3970

Reg. No. :

Name :

Fourth Semester B.C.A. Degree Examination, July 2017
Career Related FDP under CBCSS
Group 2(b) : COMPUTER APPLICATIONS
Core Course – CP 1442
Data Structures and Algorithms
(2013 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A
(Very Short Answer Type)

One word to maximum of **one** sentences. Answer **all** questions.

1. Define data structure.
2. Which data structure is best suited to manage recursion ?
3. Define tree.
4. Which traversal algorithm over binary search tree will result sorted list ?
5. What is a file index ?
6. Define asymptotic notation.
7. What is the Best-case complexity of linear search ?
8. Define header node.
9. Define hash function.
10. Define algorithm.

(10×1=10 Marks)



SECTION – B
(Short Answer)

Not to exceed **one** paragraph, answer **any eight** questions. **Each** question carries **two** marks.

11. Differentiate linear and nonlinear data structure.
12. Write a note on stack.
13. What are the applications of queue ?
14. Describe memory representation of tree.
15. What is inorder traversal ?
16. Write a note on applications of tree.
17. Describe file organization.
18. What is Big O notation ?
19. What is worst case complexity ?
20. Write a note on heap.
21. What is garbage ?
22. What is header linked list ?

(8×2=16 Marks)

SECTION – C
(Short Essay)

Not to exceed **120** words, answer **any six** questions. **Each** question carries **four** marks.

23. Write a detailed note on sparse matrix.
24. Explain about circular linked list.
25. Describe binary tree in detail.
26. Explain threaded binary tree in detail.



27. Describe binary search algorithm.
28. Write a note on complexity of algorithms.
29. Explain merge sort.
30. Write a note on compaction.
31. Explain hash table.

(6×4=24 Marks)

SECTION – D
(Long Essay)

Answer **any two** questions. **Each** question carries **15** marks.

32. Why array is called data structure ?
33. Explain about binary search tree.
34. Discuss various graph traversal techniques.
35. Explain quick sort algorithm with the support of example.

(15×2=30 Marks)

Add to list



(Pages : 3)

C – 3971

Reg. No. :

Name :

Fourth Semester B.C.A. Degree Examination, July 2017
Career Related FDP under CBCSS
Group 2(b) : Computer Applications
Core Course : CP 1443 – DATABASE MANAGEMENT SYSTEMS
(2013 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

(Very Short Answer Type)

One word to maximum of one sentence. Answer all questions.

1. Define DBMS.
2. Define referential integrity.
3. What is Data Redundancy ?
4. What is the symbol to notate projection operation ?
5. Define 1 NF.
6. What is an atom in relational algebra ?
7. What is a weak entity ?
8. Define conceptual view.
9. Expand DML.
10. Write the syntax of update query.

(10×1=10 Marks)

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SECTION – B
(Short Answer)

Not to exceed **one** paragraph, answer **any eight** questions. **Each** question carries **two** marks.

11. What is a candidate key ?
12. Write a note on advantages of database.
13. What is a schema ?
14. What is a free variable in tuple relational calculus ?
15. Explain about functional dependency.
16. Differentiate DDL and DML.
17. What is equi join ?
18. What are inference axioms ?
19. Define tuple relational calculus.
20. How can we notate derived attributes in ER diagram ?
21. What is a view ?
22. What does lossless decomposition means ?

(8×2=16 Marks)

SECTION – C
(Short Essay)

Not to exceed **120** words, answer **any six** questions. **Each** question carries **four** marks.

23. Compare file oriented system and data base system.
24. Write a note on role of DBA.
25. Write a note on set operations in relational algebra.



26. Explain about any two DML command.
27. Write a note on join operation.
28. Explain candidate key and primary key.
29. Write a note on mapping cardinalities.
30. Write a note on types of attributes.
31. Write about structure of DBMS.

(6×4=24 Marks)

SECTION – D

(Long Essay)

Answer **any two** questions. **Each** question carries **15** marks.

32. Write a detailed note on ER diagram with the support of example.
33. Write a detailed note on relational calculus.
34. Explain normalization in detail.
35. Explain Relational Data Model and DBMS in detail.

(15×2=30 Marks)



SECTION – B

Not to exceed one paragraph, answer any eight questions. Two marks each.

(8×2=16 Marks)

11. Name the common services provided by an Operating System.
12. What are File Attributes ?
13. What is real time system ?
14. List two advantages of multiprogramming.
15. When do you say a process is in safe state ?
16. Define deadlock.
17. Write note on page fault.
18. What is time sharing operating system ?
19. What do you mean by system calls ?
20. Define Semaphores.
21. Explain briefly the CPU scheduling criteria.
22. Explain the relevance of Virtual memory.

SECTION – C

Not to exceed 120 words, answer any six questions. Four marks each. (6×4=24 Marks)

23. Explain about process state transition diagram.
24. Explain about swapping.
25. Differentiate between sequential and direct file access methods.
26. Differentiate between long term and short term scheduler.



27. What do you mean by internal fragmentation ?
28. What are the necessary conditions for deadlock ?
29. Write a note on PCB.
30. What is resource allocation graph and explain with an example ?
31. Explain any two process scheduling algorithms.

SECTION - D

Answer **any two** questions. **15 marks each.**

(2x15=30 Marks)

32. Explain the various scheduling algorithms.
 33. Explain about paging.
 34. Explain deadlock avoidance with Banker's algorithm.
 35. Describe various disk scheduling algorithms in detail.
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