II Sem BSc

MS – 28

II Semester B.A./ B.Sc. Examination, June 2009
(Semester Scheme)
COMPUTER SCIENCE (Paper – II)
Data Structures and Operating Systems

Time : 3 Hours Max. Marks :

Instruction *: Answer* ***all*** *the Sections.*

SECTION – A

Answer **any ten** questions : **(10×1=1**

1. Define Data Structure.
2. Specify the size for Integer and float data type.
3. Define malloc ( ) function.
4. List out the operations performed on stack.
5. Define Binary tree.
6. What is circuit in a graph ?
7. Mention the role of Bootstrap Program.
8. Define Response time.
9. What is logical address ?
10. Give the advantages of Paged memory allocation.
11. What is a file ?
12. Define Thrashing.

MS – 287

SECTION – B

Answer **any five** questions : **(5×3=15)**

13. Write a program to insert an element into an array.

14. Explain doubly linked list with its advantage.

15. Explain linked list representation of a binary tree.

16. Explain linear search technique.

17. What is multiprograming ? What are its objectives ?

18. Write a note on overlays.

19. Explain File Protection Methods.

SECTION – C

Answer **any five** questions : **(5×7=35)**

20. Write a program to create a linked list and to insert a node at the beginning.

21. Write an algorithm to convert infix expression to postfix expression with example.

22. a) Define complete binary tree. **2**

    b) Discuss an algorithm to delete item from binary tree. **5**

23. Explain Depth first search algorithm in detail.

24. Explain quick sort technique with example.

25. What is PCB ? Explain its function in detail.

26. Explain any two CPU scheduling algorithm.

27. Discuss the different types of file allocation methods.

NU – 2211

II Sem. B.C.A. Examination, November/December 2005
(New Scheme)
COMPUTER SCIENCE
2 BCA 3 : Data Structures Using C

Time: 3 Hours Max. Marks: 80

***Instruction** : Answer all the Sections.*

SECTION – A

Answer any eight questions. **Each carries 3** marks :

1. What is linear data structure ?
2. Define a stack.
3. What is sparse matrix ? Give one example.
4. Explain circular queue with an example.
5. Define time and space complexity of an algorithm.
6. Explain any two functions used in dynamic memory allocation.
7. Translate the infix expression to post fix expression A + B/C – D.
8. What is binary search tree ?
9. Mention different operations that are performed on queue.
10. Explain linear search.

SECTION – B

Answer any four questions. **Each carries 14** marks :

1. a) Give the classification of data structure. 5
   b) What is a linear linked list ? How do you perform insertion operation on it ? 5
   c) Write a C function to find the length of a given string. 4
2. a) What are static variables ? Mention the rules that govern the use of static variables. 4
   b) What are the advantages and disadvantages of a singly linked list ? 5
   c) Write a recursive function to find factorial of a number. 5

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NU – 2211

3. a) Write an algorithm to delete on item from a linked list. 5
   b) What are the advantages of a doubly linked list over singly linked list ? 4
   c) Explain the process o ' inserting node to the end of a linked list. 5

4. a) Write an algorithm to perform PUSH, POP and display operations on a stack. 5
   b) Discuss applications of a queue. 5
   c) What is priority queue ? Give an example. 4

5. a) Explain different tree traversals using algorithm. 6
   b) Define binary tree. Draw a binary search tree for the following nodes : 70, 15, 85, 79, 50, 10, 100. 8

6. a) Arrange the following numbers in descending order using radix sort : 8
   36 72 43 21 49 90 65 50
   b) Write a C program to implement binary search. 6

MS – 287

II Semester B.A./ B.Sc. Examination, June 2009
(Semester Scheme)
COMPUTER SCIENCE (Paper – II)
Data Structures and Operating Systems

Time : 3 Hours Max. Marks : 60

***Instruction** : Answer **all** the Sections.*

SECTION – A

Answer **any ten** questions : **(10×1=10)**

1. Define Data Structure.
2. Specify the size for Integer and float data type.
3. Define malloc ( ) function.
4. List out the operations performed on stack.
5. Define Binary tree.
6. What is circuit in a graph ?
7. Mention the role of Bootstrap Program.
8. Define Response time.
9. What is logical address ?
10. Give the advantages of Paged memory allocation.
11. What is a file ?
12. Define Thrashing.

MS – 287

SECTION – B

Answer **any five** questions : (5×3=15)

13. Write a program to insert an element into an array.

14. Explain doubly linked list with its advantage.

15. Explain linked list representation of a binary tree.

16. Explain linear search technique.

17. What is multiprograming ? What are its objectives ?

18. Write a note on overlays.

19. Explain File Protection Methods.

SECTION – C

Answer **any five** questions : (5×7=35)

20. Write a program to create a linked list and to insert a node at the beginning.

21. Write an algorithm to convert infix expression to postfix expression with example.

22. a) Define complete binary tree. 2

    b) Discuss an algorithm to delete item from binary tree. 5

23. Explain Depth first search algorithm in detail.

24. Explain quick sort technique with example.

25. What is PCB ? Explain its function in detail.

26. Explain any two CPU scheduling algorithm.

27. Discuss the different types of file allocation methods.

NU – 1992

B.A/ A S

Final B.Sc. Degree Examination, November/December 2005
(New Scheme) (1992-93 & Onwards)
COMPUTER SCIENCE (Paper – IV)
Data Structures and Business Data Processing

Time: 3 Hours Max. Marks : 70

Instruction : *Answer all questions according to* ***choice.***

I. Answer **any ten** questions : **10×1=10**

a) Define static and dynamic allocation.

b) Transform the infix expression (A – B) * C + D/E to postfix expression.

c) Define circular queue.

d) What is AVL tree ?

e) Define Primary key.

f) What is sub-schema ?

g) Mention one disadvantage of centralised data base.

h) What is conceptual schema ?

i) What are transcription errors ?

j) Name any two mathematical functions in Lotus 1-2-3.

k) What is On-line transaction processing ?

l) What is the primary job of the accounts department ?

II. Answer **any three** questions : **5×3=15**

a) Write a Pascal procedure to insert a node into a singly linked list.

b) Explain PUSH operation of stack with a Pascal procedure.

c) Write a procedure to insert nodes into binary tree.

d) What is Garbage collection ? Give two strategies to handle this problem.

III. Answer **any three** questions : **5×3=15**

a) What is meant by DBA ? What are the functions performed by the DBA ?

b) What is Normalisation ? Explain First and Second Normal Forms with an example.

c) Explain physical and logical data independence.

d) What is Data security ? Explain.

P.T.O.

NU – 1992

IV. Answer **any three** questions : 5×3=15

a) What is Query language ? Illustrate any four commands of this language.

b) What is Distributed data base system ? What are its advantages and disadvantages ?

c) How is formatting of data done in ESS ? Explain.

d) Explain any two addressing techniques in ESS.

V. Answer **any three** questions : 5×3=15

a) Explain Accounting and stock control.

b) Explain the management services of the Business organisation.

c) What is Data validation ? Briefly explain the checks that could be performed during a validation run.

d) Explain key-to-disk systems.

QUESTION PAPER

II B.A./B.Sc. Degree Examination, Nov./Dec. 2005
(Revised New Scheme) (98 - 99 & onwards)
COMPUTER SCIENCE (Paper – II)
Data Structures and Software Engineering

Time: 3 Hours Max. Marks: 100

Instruction: *Answer* ***all*** *the questions.*

I. Answer any **sixteen** questions. Each question carries **one** mark. **(16×1=16)**

a) What is meant by primitive data structure ?

b) Mention any two string operations.

c) What is the difference between linked list and an array ?

d) Define a binary tree.

e) Convert the following infix expression into postfix expression.
A * B/C + D/E

f) What is software Engineering ?

g) Define SRS.

h) What is cost estimation ?

i) Mention different kinds of software design.

j) What is structured programming ?

k) Name any two sections which can be written in the DATA DIVISION.

l) Mention different arithmetic verbs in COBOL.

m) What is the purpose of PERFORM statement ?

n) What is the purpose of FILE-CONTROL paragraph ?

o) What is the difference between SORT and MERGE command ?

p) What is physical data independence ?

q) Define primary key.

r) Give an example for multivalued attribute.

s) What is specialization ?

t) Define projection operation on relations.

2. Answer any **three** questions. Each question carries **seven** marks. **(3×7=21)**

a) i) Give the classification of data structures.

ii) Write a C program to perform the following: **(2+5)**

1) Find the length of the string

2) Concatenate two strings.

P.T.O.

NU – 1987

b) i) Write an algorithm for PUSH and POP operations in a stack.

ii) Mention different types of linked lists. Explain any one type in detail. **(3+4)**

c) Write a C program to insert a node into a linked list.

d) i) Mention different tree traversals. Explain with an example.

ii) Write a note on polish notations. **(5+2)**

3. Answer any **three** questions. Each carries **seven** marks. **(3×7=21)**

a) Explain the different phases of software development life cycle.

b) i) Mention different characteristics of an SRS.

ii) Explain the different objectives of software design. **(3+4)**

c) Explain the COCOMO model of planning.

d) i) Explain the role of verification in coding.

ii) Explain functional testing. **(4+3)**

4. Answer any **three** questions. Each question carries **seven** marks. **(3×7=21)**

a) i) Mention any two advantages of COBOL.

ii) What is a literal ? Mention different types of literals in COBOL and explain. **(2+5)**

b) Explain different forms of DIVIDE Statement.

c) Write a COBOL program to merge two data files. (Assume your own record structure).

d) Explain the use of following verbs in COBOL:

i) CLOSE

ii) REWRITE

iii) EXTEND Mode

iv) GO TO DEPENDING ON

5. Answer any **three** questions. Each carries **seven** Marks. **(3×7=21)**

a) Explain various Database models.

b) i) Explain different kinds and roles of database users.

ii) Explain any two DML statements of SQL.

c) What are main components of ER diagram ? Explain each with an example.

d) Discuss the different guide lines to be followed while doing a good database design using functional dependencies.

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II Semester B.C.A. Examination, June 2009
(Old Scheme)
2 B.C.A. 3
DATA STRUCTURES USING C

Time : 3 Hours

Max. Mar

Instruction : *Answer all the Sections.*

PART – A

Answer **any 8** questions :

(8×

1. Distinguish beween
   i) Linear and nonlinear datastructures.
   ii) Primitive and nonprimitive data structure.
   iii) Binary search tree and Heap.
2. Explain the malloc ( ), calloc ( ) and free ( ) functions in C - language.
3. What is a garbage collection ? Explain.
4. Write a C - function to concatenate 2 strings using pointers.
5. Explain the tower of hanoi problem.
6. Mention any 3 applications of stack.
7. Write an algorithm to delete an element from a linear queue.
8. What is a general tree ? Explain with example.
9. Explain the linked representation of binary tree.
10. Translate the following infix expression into polish and reverse polish notations.
    A + B/C *D – E/F.

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QUESTION PAPER

MS – 788

PART – B (14×4=56)

11. a) Explain the operations on non-primitive data structures. 4

b) Explain the different string storage methods. 6

c) Write binary search algorithm. 4

12. a) What is pattern matching ? Write an algorithm for pattern matching. 5

b) Explain the memory representation of one and two dimensional array. 5

c) Write a note on complexity of algorithm. 4

13. a) Explain the memory representation of priority queue. 4

b) Write an algorithm to evaluate the postfix expression. 5

c) Write an algorithm to find the number of nodes in a linked list. 5

14. a) What is doubly linked list ? What are its advantages and disadvantages over singly linked list ? 4

b) Write an algorithm to search an item in a sorted linked list. 6

c) Write an algorithm to delete an element from circular queue. 4

15. a) What is tree traversal ? Write C - functions to traverse the tree in 3 different orders. 7

b) Construct a binary search tree. Assume that following numbers are entered one after the other in following sequence.

49, 23, 20, 89, 79, 88, 25

Delete node 49 from the constructed binary search tree.

After deleting node 49, insert node 70 into Binary search tree. 7

16. a) Write Quick sort algorithm to sort the given numbers in ascending order. 8

b) Write short notes on :

i) Sparse Matrix.

ii) Selection Sort. (4+4)