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PGIIS 1031 A-16
M.Sc. IInd Semester (CBCS) Degree Examination
Computer Science
(System Software)
Paper : SCT 2.1

Time : 3 Hours Maximum Marks : 80

Instructions to candidates :

1) Section A is compulsory
2) Answer any five questions from Section B

Section - A

1. Answer the following questions : **(10 × 2 = 20)**

a) Write the Differentiate between system software and application software.
b) What is the difference between LDA#7 and LDA SEVEN ?
c) Why SYMTAB is required in an assembler?
d) What is program relocation?
e) Define a Linker.
f) What is the use of the variable PROGADDR?
g) How do you define a Macro Processor?
h) What is the use of Macro time variable?
i) Define a term token.
j) What is Parse tree?

Section - B

2. a) Explain VAX machine architecture. **(6)**

b) Write a simple SIC/XE machine subroutine to transfer two hundred bytes of data from input device to memory. **(6)**

3. a) What are the assembler directives? Explain each with an example. **(6)**

b) Write an algorithm for Pass 2 of an assembler. **(6)**

4. a) Explain symbol defining statements with an example. **(6)**

b) What is multi pass assembler? Explain the function of multi pass assembler. **(6)**

5. a) Write an algorithm for absolute loader? Explain **(6)**

b) List out the differences between linking loader and linkage editors? Explain **(6)**

6. a) How Macro is invoked in a program? Explain with an example. **(6)**

   b) Explain concatenation of Macro parameters with an example. **(6)**

7. a) Define finite automata. Explain its usage in lexical analysis. **(6)**

   b) What is recursive descent parsing? Explain with an example. **(6)**

8. Write notes on any two of the following **(2×6 = 12)**

   a) MASM assembler

   b) Dynamic Linking

   c) Recursive Macro expansion

   d) YACC Compiler

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PGIIS 1032 A-16
M.Sc. IInd Semester Degree Examination
Computer Science
(Introduction to Computers and Programming in C)
Paper : OET 2.1

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates :

1) Section A is compulsory

2) Answer any **five** questions from Section B

Section - A

1. a) Define a computer. Give also any two applications of computers. **(10 × 2 = 20)**

b) Mention the characteristics of computers.

c) Differentiate between positional and non-positional number system.

d) What is a software?

e) What is a database?

f) Define an algorithm?

g) Who invented C Language? What was the need for it?

h) What is a variable? How is it declared?

i) Mention the formatted input/output functions in C with their syntax.

j) What is a function?

Section - B

2. a) Discuss evolution of computers. **(6)**

b) Describe basic computer organization. **(6)**

3. a) Convert the following **(6)**

i) $182_{(10)} = (\quad)_{(2)}$

ii) $AB_{(16)} = (\quad)_{10}$

b) Write down the steps in developing a software. **(6)**

4. a) What are the advantages of Word Processing Software. **(6)**

b) What are the advantages of spreadsheet applications. **(6)**

5. a) Draw a flow chart for finding the sum of any input numbers. **(6)**

b) Write the algorithm for finding the largest of three numbers. (6)

6. a) Describe for-loop statement in C. with an example. (6)

b) Write a C program to find the sum of the first n natural numbers and find also their average. (6)

7. a) What is an array? What are its advantages. Give any two examples (6)

b) Write a function to find the sum of two numbers. (6)

8. Write notes on any two **(2×6 = 12)**

a) While Statement

b) Strings

c) Computer generations

d) Structures

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PGIIS 1029 A - 16
M.Sc. IInd Semester Degree Examination (CBCS)
Computer Science
(Design and Analysis of Algorithms)(DAA)
Paper :H.C.T. 2.1

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1. Section - A is compulsory.
2. Answer any Five questions from section - B

SECTION - A

1. Answer the following questions **(10×2=20)**

a) What is Algorithm?

b) Define linear data structure

c) List the asymptotic notations

d) Define order of growth

e) Write the difference between decrease and conquer and Transform-and- conquer

f) Write the operations of BST

g) What is Spanning Tree?

h) Write any two applications of FFT

i) What are NP problems? Give an example

j) Write any two differences between Merge and quick sort

SECTION - B

2. a) Briefly discuss efficiency of Algorithm **(6)**

b) Write the mathematical analysis of recursive algorithm **(6)**

3. a) Write an algorithm for bubble sort? (6)

b) Find the convex hulls for the following sets and identify their extreme points

i) Square ii) Straight line (6)

4. a) Design a recursive decreasing one- algorithm for finding the position of the smallest element in an array (6)

b) Analyse the time complexity of strassen - matrix multiplication (6)

5. a) Write an Algorithm for all pairs of shortest path problem (Floyd) (6)

b) Explain Knapsack problem, Solution using dynamic programming (6)

6. a) What is MST? Write prims algorithm to find the Minimum Spanning Tree(MST) (6)

b) What is tree traversal write the recursive functions for preorder, inorder & postorder (6)

7. a) What is Fast Fourier Transform? How it can be used in bit operations? Explain. (6)

b) Write an Algorithm for finding shortest path using Dijkstra's (6)

8. Write short notes on any Two (2×6=12)

a) Horner's rule

b) NP - Complete problem

c) Dictionaries

d) Topological Sorting

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PGIIS 1030 A - 16
M.Sc. IInd Semester Degree Examination
Computer Science
(DataBase Management System)
Paper : HCT 2.2

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

Section A is Compulsory. Answer any Five questions from Section B

SECTION - A

1. Answer the following questions. **(10×2=20)**

a) Define Database Management system

b) What are the disadvantages of file processing system.

c) Write any four advantages of database systems.

d) Give the levels of data abstraction

e) Define instance and schema

f) Describe data model

g) What is data dictionary?

h) What are attributes?

i) Define the terms DDL and DML?

j) What is Normalisation?

SECTION - B

2. a) Discuss the responsibilities of database administrator. **(6)**

b) What is weak entity? How can it be represented in ER model? Give an example. **(6)**

3. a) Define the following terms i) Super key ii) Candidate key **(6)**

b) Describe primary and Foreign key with an example **(6)**

4. a) Explain insert, delete and update statements in SQL with example (6)

b) How view is created and dropped? What problems are associated with updating views. (6)

5. a) Write the difference between BCNF and 3NF (6)

b) Briefly discuss relational Model (6)

6. a) Briefly explain database recovery techniques (6)

b) Explain concurrency control based on timestamp (6)

7. a) Explain database system architecture (6)

b) Briefly explain query processing and optimization. (6)

8. Write short notes on any Two (2×6=12)

i) Database security

ii) Relational Calculus

iii) Object database standards

iv) Mapping Cardinalities