



Post Graduate Diploma in Computer  
Application EXAMINATION, 2011  
Paper-DCA 101

**Introduction to I.T. and P.C. Productivity Tools**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) (Marks : 10)**

Answer all ten questions (20 words each).  
Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).  
Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).  
Each question carries equal marks.

**Part – A**

1. What is data processing?
2. What is a flash memory? Why it is so called? What is the universal product code (UPC)?
3. Divide 01101112 by 01112.
4. What are point and draw devices? Name some commonly used point and draw devices?
5. What is a user interface?
6. What do you understand by font size, and font style?
7. What is a pivot table?
8. What is animation?
9. Explain OLE.

**Part – B**

1. What is cache memory? How it is different from a primary memory?
2. Find decimal equivalent of the hexadecimal number  $2B.C_{16}$ .
3. A disk pack consists of 6 disk plates. Each plate has 400 tracks and there are 50 sectors per track. If 512 bytes can be stored per sector, calculate its total storage capacity.
4. Explain the macro in MS-Word.
5. Explain goal seek with example.

**Part – C**

1. Draw a block diagram of a computer system and explain the functions of the various units.

OR

- (a) What is a magnetic disk? Explain how data are stored and organized on a magnetic disk.
- (b) What is a DVD? Differentiate between CD-R and CD-RW disks.

2. Write Short notes on the following:

- a. Web Camera
- b. Digitizer
- c. MICR
- d. Plotter
- e. Chain Printer.

OR

- (a) Explain the concept of GUI. What are the advantages of windows Explorer?
- (b) Explain the features of recycle bin.

3. (a) What is word processing? What are the advantages of using word processing?  
(b) How do you create chart in MS-Excel? List various chart types in MS Excel.

OR

What is the role of power point in the computer application? Write down the steps to prepare and show a slide with a suitable example.

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Paper-DCA 102

**Programming with C**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) — (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. What is initialization? Why it is important?
2. What is constant?
3. Explain bitwise operator?
4. What is mean by breaking of a loop?
5. What is recursion?
6. Write short note on “Scope of Variable”?
7. What is conditional expressions?
8. Write short note on “file handling” in C language?
9. Explain register variable?
10. Write use of cluser () statement in a program?

**Part – B**

1. Write a program to demonstrate of call by reference?
2. What are the composite data type?
3. Differential between an identifier and keywords?
4. Write a program to calculate the length of the given string, without using string function?
5. Explain ternary statement in C language?

**Part – C**

1. (a) Write a program to insert an element into an existing sorted array?  
(b) What is control statement? How can we classify it?

OR

- (a) Write a program to print the pascal’s triangle.

```

      1
     1 1
    1 2 1
   1 3 3 1
  1 4 6 4 1
 1 5 10 10 5 1

```

(b) Write a program to convert years into.

- (1) Minutes
- (2) Hours
- (3) Days
- (4) Months
- (5) Seconds

By using switch statement.

2. (a) Write a program to print reverse of a given number by using pointer?  
 (c) How is a C programming executed in computer system? Explain with the help of its flow diagram?

OR

(a) Write a function using pointers to add two matrices and to return the resultant matrix to the calling function?

(b) Explain role of getch () and patch () library function with suitable example.

3. (a) Write a program to define a structure that can describe a hotel, it should have member that include the name, address, grade, average, room charges and number of room.

(b) Explain different branching statements in C language?

OR

(a) Write a program to accept a string and check whether it is a palindrome string or not without using string function?

(b) What is structure? How does a structure differ from a array?

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Paper-DCA 103

**Programming with Visual Basic**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. What is the full form of IDE?
2. What is the meaning of event driven programming?
3. What is the work of text box?
4. What is the difference between window and form layout window?
5. What is runtime property?
6. What is the default (standard) unit of form measurement?
7. What is the use of graphic control in VB?
8. What is toolbar?
9. What is query?
10. What is the use of data control in VB?

**Part – B**

1. Explain various options used with date data type of VB.
2. What is the difference between unload and query unload event?
3. Explain the difference of local window and intermediate window?
4. What is message Box? What is its purpose in VB?
5. Write short note on record source property of data control.

**Part – C**

1. Discuss the advantages and disadvantages of VB. What is an IDE? Explain in detail. How the debugger helps in rectifying syntactical and logical errors?

OR

Visual Basic offers different type of projects, what are the usages of each type of projects? Explain with the help of suitable example.

2. (a) Explain drag and drop operation in VB by an example.  
(b) Write VB statement to swap two numbers without using third variable.

OR

- (a) Explain the difference between procedure and function.
- (b) What are the three different ways to access files in VB? Explain each with suitable example.
3. Write down the difference on any two.
- i. SDI and MDI Form
  - ii. Image box and Picture box
  - iii. Data control and Data aware control
  - iv. Standard and Class modules



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Paper-DCA 104

**Electronic Data Processing**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. What is the use of set clock command?
2. What do you mean by DDL and DCL statements?
3. Explain set filter command?
4. What is the difference between pack and zap commands?
5. What is the use of set relation command?
6. What is DBMS?
7. What is relational Algebra?
8. What is data model?
9. What do you mean by constraints?
10. Why we use set talk off in foxpro program?

**Part – B**

1. What is system? Explain its concept.
2. Why we use DBMS in place of conventional file system?
3. What do you mean by aggregation?
4. Explain the concept of private and public variables?
5. How the quick report is created? Explain the process of quick report.

**Part – C**

1. What is E-R diagram? What symbols are used to construct an E-R diagram?

Construct an E-R diagram for a banking enterprise. (3+5+12)

OR

What is sorting and indexing? What are the differences between them? Explain the overall process of sorting and indexing in foxpro. (2+4+14)

2. (a) What is normalization? Explain the needs of normalization. Explain 1NF, 2NF, 3NF with the help of a suitable example. (2+2+6)

(b) What do you mean by DBMS? Explain its various characteristics and also explain its architecture? (2+8)

OR

(a) What do you mean by centralize and client/server architecture? Which type of architecture is best n why? (5+5)

(b) Explain sequential, Random, and index sequential file organization in detail.(10)

3. (a) Write a foxpro program to generate Fibonacci series.

(b) Write a program to check that given number is prime or not.

(c) Write a foxpro program to find the factorial of given number. (8+6+6)

OR

(a) Differentiate the following with example.

(a) Do .....case and Do .....While

(b) @ say and @ get

(c) Set talk and Set echo

(d) Union and Cartesian product

(e) Trim and subtrim (2+2+2+2+2)

(a) Explain the following commands.

(a) List and display

(b) Find

(c) Set Memo width

(d) Brows

(e) Edit (2+2+2+2+2)



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Paper-DCA 108

**Java**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. What is the difference between print() and println()?
2. What is Encapsulation?
3. What is Constructor?
4. What is an applet?
5. What is a string?
6. What is an abstract class?
7. What is Exception?
8. What is AWT?
9. What is keyword?
10. How many types of visibility modes in java?

**Part – B**

11. What is the difference between entry and exit control loop?
12. Explain java virtual machine (JVM)?
13. Write a note on stack class.
14. How to create multilevel hierarchy in java?
15. What are the differences and similarities between interface and class?

**Part – C**

16. Write a program to check whether the given number is prime or not.

OR

Explain types of inheritance with examples.

17. What is method overriding? Explain with example.

OR

What is array? What are its types? Write a program to add two matrices.

18. What is package? How user defined package is created? Explain it with example.

OR

Write short notes on:

- i) Frame windows
- ii) Utility classes
- iii) Types of errors



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Paper-DCA 107

**Operating System**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. Define operating system.
2. What is hit ratio?
3. Write the process of swapping in OS.
4. What is spooling?
5. Write the name of process states
6. What is through put?
7. What is the use of Finger-i?
8. What is the use of bc command?
9. What is the use of tr command?
10. Write the name of different shells.

**Part – B**

1. What is Semaphores?
2. Write types of system calls.
3. Explain multithreading models.
4. Write about absolute method for chmod command.
5. What are positional parameters?

**Part – C**

1. What do you mean by scheduling? What are the scheduling criteria. Explain first come first serve scheduling.

OR

Consider the following set of processes, with the length of the CPU-burst time given in milliseconds:

Process	Burst Time	Priority
P <sub>1</sub>	10	3

P <sub>2</sub>	1	1
P <sub>3</sub>	2	3
P <sub>4</sub>	1	4
P <sub>5</sub>	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time D.

- (a) Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, a nonpreemptive priority and RR Scheduling.
  - (b) What is the average waiting time of scheduling algorithm in part a? (15+5)
2. What do you mean by paging? Explain the basic method of paging?  
OR
- (a) What is deadlock? How can we prevent the occurrence of a deadlock.
  - (b) Explain Banker's Algorithm. (8+12)
3. (a) Explain the linux architecture.  
(b) Write a shell program to reverse a given number.  
OR
- (a) What is vi editor. Explain the following in context of vi editor:
    - (a) Modes of vi
    - (b) Searching a pattern in a file.
    - (c) Write a shell program to find Armstrong numbers between 1 to 1000.

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Paper-DCA 106

**Programming in RDBMS**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. What do you mean by relational database?
2. How SQL commands are classified?
3. What is schema?
4. What is table alias?
5. Write SQL statement to display following:-  
Today, the date is <current date>
6. How do you combine the results of two or more queries?
7. Write a query to display Ename and Sal of those employee who don't have their salary in the range of 5000 to 10000 from table EMP.
8. What are literals?
9. Define a trigger in PL/SQL.
10. What is the basic difference between BEFORE and AFTER triggers?

**Part – B**

11. What is data integrity? How it is implemented with a RDBMS?
12. Explain following commands with example:
  - a. COMMIT
  - b. ROLLBACK
  - c. SAVE POINT
13. What is PL./SQL? Write PL/SQL code to check whether a given number is odd or even.
14. What type of procedures are supported in PL/SQL? Write with suitable example.
15. Briefly explain the architecture of DB2.

**Part – C**

16. What do you mean by loops? Why loops are used in PL/SQL? Explain the PL/SQL control structure with proper syntax and examples.

OR

Explain following functions with proper syntax and examples:

CONCAT  
SUBSTR  
TRUNC  
MONTHS-BETWEEN  
ROUND

17. Student

Column	Datatype	Size	Constraint
Roll Num	Number	3	Primary Key
Name	Varchar2	20	NOT NULL
Class	Varchar2	5	
Total Marks	Number	5	

- (a) Write PL/SQL procedure that takes student's roll number as a parameter and increases total marks of that student by 2% as he/she is a sports person.  
(b) Create a trigger to display the Name and Class of students whose records are deleted from the student table.

OR

- (a) What is an Exception? How errors are handled in PL/SQL? Describe.  
(b) What do you understand by database triggers? How these are differ from constraints? Also write the types of triggers.

18. Explain following SQL commands with syntax and example:

- GRANT
- REVOKE
- CREATE TABLE
- UPDATE
- INSERT INTO

OR

- (a) Write down the features of DB@.  
(b) How many views a RDBMS support? Explain external view of DB2.

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**Advance Data Base Management System**

Time allowed: Three Hours

Maximum Marks : 80

**Part – A (Compulsory) — (Marks : 10)**

Answer all ten questions (20 words each).

Each question carries equal marks.

**Part – B (Compulsory) (Marks : 10)**

Answer all five questions (50 words each).

Each question carries equal marks.

**Part – C (Marks : 60)**

Answer all three questions (400 words each).

Each question carries equal marks.

**Part – A**

1. What is two phase locking?
2. What is temporal database concept?
3. What is Thomas writes rules of concurrency control?
4. Explain the term aggregation?
5. What is query processing?
6. What is XML tree?
7. What is concurrency?
8. Differentiate between homogenous and heterogeneous database?
9. What do you understand by the referential integrity?
10. What are complex objects?

**Part – B**

1. Explain the architecture of distributed database system.
2. Explain different types of attributes.
3. Write an algorithm for external sorting.
4. Explain the ACID properties of transaction.
5. Explain the Aries Recovery Technique.

**Part – C**

1. Explain DDBMS. Explain the architecture of DDBMS. List the advantages and disadvantages of DDBMS.

OR

2. What is fragment of a relation? What are the main types of fragmentations? Why fragmentation a useful concept in distributed database design?
3. Explain shadow paging and checkpoint recovery technique.

OR

4. Differentiate the following:

- a. Objects and attributes
  - b. Overriding and overloading
  - c. Polymorphism and dynamic binding
  - d. Ownership semantics and reference semantics
  - e. Structured and unstructured complex object
5. Consider the following two transactions:

```
T31:read(A);
      Read(B);
      If A=0 then B:=B+1;
      Write (B);
T32: read(B);
      Read(A);
      If B=0 then A:=A+1;
      Write (A);
```

Add lock and unlock instructions to transactions T31 and T32 so they observe the two phase locking protocol. Can the execution of these transactions result in a deadlock?

OR

6. Write the following queries in SQL/XML assuming the DTD for an XML representation of the following nested-relational schema.
- ```
Emp = (ename,children set set of (Children, skills Set of (Skills)))
Children = (Name, Birthday)
Birthday = (day, month, year)
Skills = (type, Examset set of (Exams))
Exams = (year, city)
```
- (a) Find the names of all employees who have a child who has a birthday in March.
  - (b) Find those employees who took an examination for the skill type "Typing" in the city "Dayton".
  - (c) List all skill types in Emp.