Course Code : **PGDCA**
Course Title : **Computer Fundamental and Programming in C**
SLM Code - : **C-101**
Assignment Number : **PGDCA(1)A/C-101/Assign/2011**

<u>Attempt all questions</u>:   Max.Marks. 25

Q.No.1   **(a)**What is call by reference? How it is different from call by value?   (9)
(b)Write a C function to swap two given numbers using call by reference mechanism.
(c) Discuss all the functional units of a Computer.

Q.No.2   What is looping? How many loops are used in C Programming?
Difference between 'While' and 'For' loop with example.   (5)

Q.No.3   (a) Write a C program to print the following triangle:
(3)

```
          *
         ***
        *****
       *******
      *********
     ***********
```

(b) Write a C program to read the internal test   marks of 25 students in a class and show the number of students who have scored more than 50% in the test. Make necessary assumptions.   (3)

Q.No.4   (a) Write a program in C for showing working of different logical operator in C. Your program should guide users with proper message/menu on the console. (3)

(b) Write a function to find the area of a triangle whose length of three sides is given.   (2)

Course Code : **PGDCA-2**
Course Title : **Data Structure Through C**
SLM Code - : **C-104**
Assignment Number : **PGDCA(2)A/C-104/(D)Assign-2011**

<u>Attempt all questions</u>:   Max.Marks: 25

Q.No.1   Draw two binary trees whose preorder listing is **abcdefgh** and whose post order listing is **dcbgfhea**. Also, list the nodes of binary trees in inorder and Post order.   **(5)**

Q.No.2   (a)Write down the top down and bottom up approach to algorithm design.
(b)Write down the difference between linear and non-linear data structure.   **(5)**

Q.No.3   (a)   What do you mean by searching? List out the different techniques for   searching and explain the procedure of any one of them with the help of algorithm.
(b)   List out the difference between Bubble and Selection sort. Also mention their algorithm used for sorting.   **(5)**

Q.No.4   Write a C function to count the number of items in a queue.   **(5)**

Q.No.5   What is graph? Explain directed and undirected graph.   **(5)**

Attempt all questions .All Questions carry equal Marks

Max.Marks: 25

Q.No.1   What were the main forces that led to the commercialization of the Internet? Summarize your answer in about 100 words.

Q.No.2   In about 200 words, explain why Web sites use cookies. In your answer, discuss the reasons that cookies were first devised and explain where cookies are stored. You can use the links in the Online Companion to help with your research.

Q.No.3   In about 100 words, describe steganography and explain its connection to the topic of online security. You can use the links in the Online Companion to help with your research.

Q.No.4   In one paragraph, outline the problems that a company might encounter if it has to conduct international transactions using electronic cash.

Q.No.5   In about 200 words, outline the advantages and disadvantages of smart cards for online merchants.

Attempt all questions: Max.Marks: 25

Q.No.1   For creating a student information management system of a University a database management system is better than that of file management system." Justify the statement given above. Now, assume that you are assigned the role of Database Administrator for the University database. What are the key responsibilities you have to handle?   (4)

Q. No. 2   (i)Consider the following employee record in an organisation
          Employee (ID, Name, date of birth, date of joining, age, address, department, manger, IDs of projects working on, role in the project, project name, project team leader, duration of project, dependent names)
          An employee works in one department. Each department is managed by one manager. An employee can work on many projects. A project has a team leader. An employee can have many dependents, however, one dependent can be related to only one employee.

          Identify the functional dependencies in the relation given above. Normalize the relational up to BCNF. Make suitable assumptions, if any
                                                                            (5)

Q.No.3   (i)Draw an E R Diagram for a system having the following requirements:

          A University maintains data of its students, the programmes they are registered in and the address information of the students. A programme consists of many courses. The database needs to store the programme duration and fees. A course has a number of credits associated with it and may be the part of more than one programmes. Some of the constraints that may be assumed for the University database system are:
          • A student can take only one programme at a time.
          • A course may be part of more than one programme.
          • The duration of the programme is in semesters. A course is taught in a typical semester of the programme.
          List all the entity sets, attributes of each entity sets and relationship sets. Draw the E-R diagram for the requirements as listed above for the database system. You may use the concept of keys, cardinality etc. in a proper way. Make and state suitable assumptions, if any.   (4)
          (i)Create the relations from the E-R diagram that you have drawn for part (i). The relations must be at least in 2 NF. You must do the following with the relations

          a)   Enter about 5 sets of meaningful data in each of the relations

b) Identify the domain of various attributes
c) Identify the primary keys of all the relations
d) Identify the Foreign keys and referential integrity constraints in the
relations   (4)

(ii)Perform the following tasks using relational algebraic operations for the relations
created at part (ii):

(a) List all the courses of MCA programme.
(b) Find the student name, programme code and the programme duration
of the programme in which s/he is registered.
(c) Find the list of students in BCA programme.   **(4)**

Q.No.4   Create a Table in Oracle (apply your assumptions) and perform the operations to
do the followings:
(a) insert a row
(b) delete a row
(c) update a row   **(4)**

Course Code	:	**PGDCA-4**	
Course Title	:	**Operating System with Unix and Shell** **Programming**	
SLM Code -	:	**C-110**	
Assignment Number	:	**PGDCA(4)A/C-110/2(j)Assign/2011**	

<u>Attempt all questions</u>:   Max.Marks: 25

Q.No.1   a)   What is Security features required in Operating Systems?   (5)
b)   What is system call and also explain interrupt mechanisms in
short?

Q.No.2   a)   What is shell and the purpose of shell? Give the name of at least
four different shells.   (4)
b)   What is the content of variable $_?

Q.No.3   a) How is microkernel architecture different from a kernel architecture? Explain.
b) How is multithreading useful in uniprocessor as well as symmetric
multiprocessing? Explain.   (8)

Q.No.4   a)   Write the Linux/Unix command for the followings:
i)   to display the last content of a file.
ii)   Compare two files and display the differences.
iii)   to change the permission modes of a file and directory.
iv)   to count the number of all files in a directory.
v)   to list the users currently logged on to the system and count
them.   **(4)**

b)   What a shell script that prints a list of every unique word in a
file in reverse order?   **(4)**

Course Code	:	PGDCA-5
Course Title	:	**System Analysis & Design**
SLM Code -	:	**C-111**
Assignment Number	:	**PGDCA(5)A/C-111/2(K)Assign/2011**

Attempt all questions: All Questions carry equal Marks   Max.Marks: 25

Q.No.1   Explain the qualifications of a Systems Analyst.

Q.No.2   Draw DFDs (upto 3rd level) for a Student Information System.
Make assumptions, wherever necessary.

Q.No.3   Why Feasibility study is important for any Project? Explain the feasibility report.

Q.No.4   What are the inputs to the various processes of system development phase and
what are their deliverables? What is the main purpose of this phase?

Q.No.5   Discuss the major phases in hardware selection.

Course Code	:	PGDCA-5
Course Title	:	**Visual Basic**
SLM Code -	:	**C-112**
Assignment Number	:	**PGDCA(5)B/C-112/2(l)Assign/2011**

Attempt all questions .All Questions carry equal marks .:   Max.Marks: 25

Q.No.1   Write a program to final the sum average and division of a student if
marks of five subjects are given using command Buttons.

Q.No.2   What is the procedure to built a class and object in visual basic?

Q.No.3   What do you mean by "event driven programming"? Explain?

Q.No.4   Explain the IDE used in Visual Basic?

Q.No.5   Write a program in VB to find the greater number out of three numbers?

Course Code	:	**PGDCA-6**
Course Title	:	**Mathematics & Graph theory**
SLM Code -	:	**C-113**
Assignment Number	:	**PGDCA(6)a/C-113/2(M)Assign/2011**

Attempt all questions .All Questions Carry equal Marks .

Max.Marks: 25

Q.No.1   Define a set and give examples to illustrate the difference between a collection and a set. What are the different ways to specify a set? Give examples.

Q.No.2   Define a relation. When a relation R on a set A is known as symmetric, reflexive transitive and anti-symmetric? Give an example for each.

Q.No.3   Show that in the set of all real numbers, the relation 'greater than is transitive but not reflexive.

Q.No.4   Applying scope, conventions and short forms, write down the following formula using minimum number of brackets.

(i) $((P \rightarrow R) \wedge (\sim Q) \rightarrow R)) \rightarrow ((P \vee Q) \rightarrow R)$. (ii) $(\sim P) \rightarrow ((\sim P) \vee Q)$

Q.No.5   Solve the following equations, by matrix method

(i) $x + y + z = 3$ (ii) $x + y + z = 3$
          $2x - y + z = 2$ $x + 2y + 3z = 6$
          $x - 2y + 3z = 2$ $x + 4y + 9z = 6$