USN | 1 | 6 | C | 0 | 9 | C | S | 0 | 4 | 1 |

10AL61

Sixth Semester B.E. Degree Examination, June / July 2013
Management and Entrepreneurship

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO question from each part.*

PART - A

1   a. Give a brief account of nature of management.   (07 Marks)
     b. Explain characteristics of management.   (05 Marks)
     c. Briefly explain functions and roles of levels of management.   (07 Marks)
     d. Define management.   (01 Marks)

2   a. Explain briefly Hierarchy of plans.   (07 Marks)
     b. What is importance of planning? Why should managers plan?   (05 Marks)
     c. What are steps involved in planning process?   (07 Marks)
     d. Give five chart of types of planning premises.   (01 Marks)

3   a. Give the important characteristics of organization.   (07 Marks)
     b. What are the types of organization? Explain with flow chart department line organization.
                                                                                          (07 Marks)
     c. Explain the term centralization and decentralization with example.   (04 Marks)
     d. What is Departmentation?   (02 Marks)

4   a. What is meaning of direction? Explain steps involved in controlling.   (07 Marks)
     b. Define motivation. Explain nature and different types of motivation.   (07 Marks)
     c. Define leadership. Explain briefly on types of leaders or leadership styles.   (04 Marks)
     d. What is purpose and importance of communication? Explain in one statement.   (02 Marks)

PART - B

5   a. Give notes on types of entrepreneurs, with examples.   (07 Marks)
     b. What are the functions of entrepreneur? Explain with examples.   (07 Marks)
     c. Who is an entrepreneur? What are the characteristics of a unique entrepreneur? (04 Marks)
     d. Name the stages of entrepreneurship process.   (02 Marks)

6   a. Explain the meaning, concept and definition of small scale industry.   (07 Marks)
     b. What are the essential characteristics of small scale industries?   (06 Marks)
     c. How small scale industries helps in India's economic development?   (07 Marks)

7   a. Briefly discuss SIDBI and explain need for the institutional support for the SSI.   (07 Marks)
     b. Briefly discuss the institutions that are providing technical and marketing support for
         S.S.I's.   (07 Marks)
     c. What are the institutions at state level that are providing support to S.S.I's? (06 Marks)

8   a. Briefly explain meaning of project and classify projects.   (06 Marks)
     b. What are the steps involved in formulation of project report? Explain.   (07 Marks)
     c. Briefly discuss Network analysis. What is PERT? Explain.   (07 Marks)

*****

Sixth Semester B.E. Degree Examination, June/July 2013
UNIX System Programming

Time: 3 hrs.   Max. Marks:100

Note: *1. Answer FIVE full questions, selecting*
atleast TWO questions from each part.
2. Write comments for all the programs.

PART – A

1 a. What is POSIX standard? Explain the different subsets of POSIX standards. **(05 Marks)**
   b. Write a C/C++ POSIX complaint program to check the following limits :
      i)   Number of clock ticks
      ii) Maximum number of child processes
      iii) Maximum path length
      iv) Maximum characters in a filename
      v)   Maximum number of open files per process. **(10 Marks)**
   c. Explain the common characteristics of API and describe the error status code. **(05 Marks)**

2 a. Explain the different file types available in UNIX or POSIX systems. **(10 Marks)**
   b. Describe the UNIX kernel support for files. **(06 Marks)**
   c. Differentiate between hard links and symbolic links. **(04 Marks)**

3 a. Explain the importance of file and record locking in UNIX. Show how "fcntl" API can be used for file and record locking. **(10 Marks)**
   b. Write a C/C++ program to emulate ln command in UNIX. **(05 Marks)**
   c. Write a C/C++ program to emulate mv command in UNIX. **(05 Marks)**

4 a. Explain with a neat block diagram, the memory layout of a C program. **(05 Marks)**
   b. For the following given C program, identify the various segments when the program is executed :
```
# include <stdio.h>
int a = 5;
int b;
int data [10];
const int i = 5;
int main( )
{
int X;
char * ptr = malloc(50);
return 0;
}
```
   (05 Marks)
   c. Explain the setjmp( ) and longjmp( ) functions with an example C/C++ program illustrating their usage. **(10 Marks)**

PART – B

5 a. What do you mean by fork( ) and vfork( ) functions? Explain both functions with example programs (write-separate programs). **(10 Marks)**
   b. What is job control? Summarize the job control features with the help of neat diagram. **(10 Marks)**

6 a. Explain the sigaction( ) function by giving the prototype and discuss its features. **(08 Marks)**
   b. Briefly explain the kill( ) API and the alarm( ) API. **(06 Marks)**
   c. What is a daemon process? Discuss its characteristics. **(06 Marks)**

7 a. What is FIFO? Explain how it is used in IPC. Discuss with an example C/C++ program the client –server communication using FIFO's. **(10 Marks)**
   b. Write short notes on the following :
       i) Message queues
       ii) Semaphores. **(10 Marks)**

8 a. Explain the concept of shared memory with an example C/C++ program. **(10 Marks)**
   b. What do you mean by passing file descriptors between processes? Explain. **(10 Marks)**

* * * * *

Sixth Semester B.E. Degree Examination, June/July 2013

Compiler Design

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. Explain three types of software productivity tools.   **(06 Marks)**
   b. Define sentinels. Give lookahead code with sentinels.   **(04 Marks)**
   c. Enlist algebraic laws for regular expressions.   **(07 Marks)**
   d. Give transition diagram for unsigned numbers.   **(03 Marks)**

2 a. Write an algorithm to eliminate left recursion from a grammar, also give the syntax of the
      production.   **(05 Marks)**
   b. Consider the production:

      $S \rightarrow aAb$

      $A \rightarrow cd/C$.

      Show that recursive-descent parsing fails for the input string "acdb", also explain recursive
      descent algorithm.   **(07 Marks)**
   c. Find First and Follow for the given grammars:

      i) stmt_sequence $\rightarrow$ stmt stmt_sequence′

         stmt_sequence′ $\rightarrow$; stmt_sequence/$\in$

         stmt $\rightarrow$ s

      ii) $S \rightarrow ,GH;$

         $G \rightarrow aF$

         $F \rightarrow bF/\in$

         $H \rightarrow KL$

         $K \rightarrow m/\in$

         $L \rightarrow n/\in$ **(08 Marks)**

3 a. What are two types of conflicts during shift reduce parsing? Give examples.   **(04 Marks)**
   b. For the given grammar $E \rightarrow E + n/n$. Construct parsing table of LL(1). Verify 3 + 4 + 5 and
      show each step of verification with reference to parsing table.   **(08 Marks)**
   c. How to verify whether grammar is LL(1) or not? Show that:

      $S \rightarrow AaAb/BbBa$

      $A \rightarrow \in$

      $B \rightarrow \in$

      is LL (1), without constructing any table.   **(08 Marks)**

4 a. Construct the DFA of LR(0) items and SLR parsing table for the grammar:

      Stmt_sequence $\rightarrow$ stmt_sequence; stmt/stmt

      Stmt $\rightarrow$ S

      Identify Kernel and non Kernal items in state I_4.   **(12 Marks)**
   b. Discuss the behaviour of the LR parser.   **(04 Marks)**
   c. For the grammar $A \rightarrow (A)/a$, construct LR(1) set of items.   **(04 Marks)**

PART – B

5 a. Write annotated parse tree for 3∗5 + 4n using Top down approach. Write semantic rules for each step. **(08 Marks)**

b. Discuss S-attributes and L-attributes with respect to SDD (Syntax Directed Definition). **(04 Marks)**

c. By considering an array type int[3][3], write syntax directed translation with semantic rules. **(08 Marks)**

6 a. Enlist any four common three address instruction forms. **(04 Marks)**

b. Define quandruples, triples and static single assignment form. **(06 Marks)**

c. Write syntax directed definition for flow of control statements. **(10 Marks)**

7 a. Write a version of quick sort, in ML style using the nested functions. Give any four additional features of ML. **(08 Marks)**

b. "Most programs exhibit a high degree of locality", explain the statement. **(05 Marks)**

c. "Garbage collection is seldom used in real time applications", justify the statement. How language design affects the characteristics of memory usage. **(07 Marks)**

8 a. How register allocation and evaluation order plays an important role in a code generation? Discuss. **(06 Marks)**

b. Write an intermediate code to set a 10×10 matrix to an identity matrix. **(10 Marks)**

c. Define flow graph. How it is constructed? **(04 Marks)**

* * * * *

USN | 1 | G | C | 0 | 9 | C | S | 0 | 4 | 1 |

10CS64

Sixth Semester B.E. Degree Examination, June/July 2013
Computer Networks II

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　　　　Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1　a.　Differentiate between connection-oriented and connectionless services. **(04 Marks)**
　b.　Explain and derive delays in datagram packet switching. **(08 Marks)**
　c.　Define routing algorithm. Explain the Bellman-Ford algorithm with an example. **(08 Marks)**

2　a.　Explain the FIFO and priority queue scheduling for managing traffic at packet level. **(08 Marks)**
　b.　Suppose that ATM cells arrive at a leaky bucket policer at times t = 2, 3, 6, 9, 11, 16, 23, 24, 25, 26 and 30. Assume I = 4 and L = 6. Plot the bucket content and identify any non-conforming cells. **(08 Marks)**
　c.　Write a note on traffic management at the flow aggregate level. **(04 Marks)**

3　a.　Explain the format of IPV4 format header. **(08 Marks)**
　b.　With a neat diagram, explain UDP datagram. **(08 Marks)**
　c.　Write a note on internet control message protocol (ICMP). **(04 Marks)**

4　a.　With a neat diagram, explain the format of the TCP segment. **(08 Marks)**
　b.　Explain the Border Gateway Protocol (BGP). **(08 Marks)**
　c.　Write a note on Network Address Translation (NAT). **(04 Marks)**

PART – B

5　a.　Explain the remote login protocols. **(08 Marks)**
　b.　Explain the RSA algorithm with an example. **(08 Marks)**
　c.　Write a note on firewalls. **(04 Marks)**

6　a.　With a neat diagram, explain the integrated services QoS. **(08 Marks)**
　b.　Explain multiprotocol label switching (MPLS) operation and packet format. **(08 Marks)**
　c.　Write a note on virtual private networks. **(04 Marks)**

7　a.　List and explain the compression methods without loss. **(08 Marks)**
　b.　With a neat diagram, explain the session initiation protocol (SIP). **(08 Marks)**
　c.　Write a note on real-time media transport protocols. **(04 Marks)**

8　a.　Briefly explain the classification of routing protocol. **(06 Marks)**
　b.　Explain the DEEP clustering algorithm. **(06 Marks)**
　c.　Explain the intracluster and intercluster routing protocols. **(08 Marks)**

* * * * *

Sixth Semester B.E. Degree Examination, June/July 2013
Computer Graphics and Visualization

Time: 3 hrs.

Max. Marks:100

Note: *Answer FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1. a. Define computer graphics? Explain in detail, the application of computer graphics in current day. **(10 Marks)**
   b. Explain working of pinhole camera. Derive angle of view. **(10 Marks)**

2. a. List and explain graphics functions. **(10 Marks)**
   b. Discuss indexed colour formation in graphics system, with suitable diagram. **(06 Marks)**
   c. Define aspect ratio and view ports with diagram. **(04 Marks)**

3. a. Name different graphics input derives. Explain the input modes in detail, with diagram. **(10 Marks)**
   b. Write a program on rotating a cube. **(10 Marks)**

4. a. List and explain different fume coordinates in Open GL. **(10 Marks)**
   b. Define and discuss with diagram translation, rotation and scaling. **(10 Marks)**

PART – B

5. a. Write a short note on current transformation matrix. **(08 Marks)**
   b. What is transformation? Explain affine transformation. **(12 Marks)**

6. a. What are two types of simple projection? List and explain. **(10 Marks)**
   b. Derive matrix representation for prospective projection, with diagram if necessary. **(10 Marks)**

7. a. List and explain different light sources in detail with suitable diagram. **(10 Marks)**
   b. What are the types of polygon shading? Discuss. **(06 Marks)**
   c. Write a brief on global illumination. **(04 Marks)**

8. Write a short notes on :
   a. Graphics pipeline architecture
   b. Library organization in Open GL
   c. Display list
   d. Mapping between coordinates. **(20 Marks)**

* * * * *

Sixth Semester B.E. Degree Examination, June/July 2013
Operations Research

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a. Define operations research. List and explain the various phases of an operations research study.   **(08 Marks)**

   b. A farmer has to plant two kinds of trees P and Q in a land of $400m^2$ area. Each P tree requires at least $25m^2$ and Q tree requires $40m^2$ of land. The annual water requirement of P tree is 30 units and of Q tree is 15 units per tree, while at most 3000 units of water is available. It is also estimated that the ratio of the number of Q trees to the number of P trees should not be less than 6/19 and should not be more than 17/8. The return per tree from P is expected to be one and half times as much as from Q tree. Formulate the problem as an LPP model.   **(06 Marks)**

   c. Use the graphical method to solve the following LPP.
   Minimize $Z = 1.5x_1 + 2.5x_2$
   Subject to the constraints $x_1 + 3x_2 \geq 3$,
   $$x_1 + x_2 \geq 2$$
   And $x_1, x_2 \geq 0$.   **(06 Marks)**

2   a. Define basic solution and obtain all the basic solutions to the following system of linear equations:
   $2x_1 + 3x_2 + 4x_3 = 10$,
   $3x_1 + 4x_2 + x_3 = 12$
   Also, classify the solutions into
   i)   Basic feasible solution
   ii)   Degenerate basic solution
   iii)   Non-degenerate basic feasible solution.   **(07 Marks)**

   b. Solve the following LPP using simplex method:
   Maximize $Z = 10x_1 + 15x_2 + 8x_3$
   Subject to the constraints
   $x_1 + 2x_2 + 2x_3 \leq 200$,
   $2x_1 + x_2 + x_3 \leq 220$,
   $3x_1 + x_2 + 2x_3 \leq 180$,
   $$x_1 \geq 10,$$
   $$x_2 \geq 20,$$
   $$x_3 \geq 30$$
   and $x_1, x_2, x_3 \geq 0$.   **(13 Marks)**

3   a. Solve the following LPP by two-phase simplex method:
   Maximize $Z = 3x_1 - x_2$
   Subject to the constraints
   $$2x_1 + x_2 \geq 2,$$
   $$x_1 + 3x_2 \leq 2,$$
   $$x_2 \leq 4$$
   and $x_1, x_2 \geq 0$.   **(10 Marks)**

b. Solve the following LPP by Big-M method:

Maximize $Z = -2x_1 - x_2$

Subject to the constraints

$$3x_1 + x_2 = 3,$$
$$4x_1 + 3x_2 \geq 6,$$
$$x_1 + 2x_2 \leq 4$$

and $x_1, x_2 \geq 0$.   (10 Marks)

4 a. Solve the following LPP by revised simplex method:

Maximize $Z = 2x_1 + x_2$

Subject to the constraints

$$3x_1 + 4x_2 \leq 6,$$
$$6x_1 + x_2 \leq 3$$

And $x_1, x_2 \geq 0$ (12 Marks)

b. Explain the following:

i) Weak duality property

ii) Strong duality property

iii) Complementary solutions property

iv) Complementary optimal solutions property.   (08 Marks)

PART – B

5 a. Write any five key relationships between the primal and the dual problems.   (05 Marks)

b. Write the duals of the following LPP's.

i) Maximize $Z = 7x_1 + 4x_2 + 5x_3$

Subject to the constraints

$$2x_1 - 4x_2 + 3x_3 \leq 10,$$
$$x_1 + 3x_2 + x_3 \leq 6$$

and $x_1, x_2, x_3 \geq 0$.

ii) Minimize $Z = 3x_1 + 2x_2 + x_3$

Subject to the constraints

$$2x_1 - 3x_2 + x_3 \leq 5,$$
$$4x_1 - 2x_2 \geq 9,$$
$$-8x_1 + 4x_2 + 3x_3 = 8$$

and $x_1, x_2 \geq 0$ and x_3 is unrestricted.   (07 Marks)

c. Solve the following LPP by dual simplex method:

Minimize $Z = 2x_1 + 2x_2 + 4x_3$

Subject to the constraints

$$2x_1 + 3x_2 + 5x_3 \geq 2,$$
$$3x_1 + x_2 + 7x_3 \leq 3,$$
$$x_1 + 4x_2 + 6x_3 \leq 5$$

and $x_1, x_2, x_3 \geq 0$.   (08 Marks)

6 a. A company has 3 cement factories located in 3 cities X, Y and Z which supply cement to 4 project sites located in cities A, B, C and D. Each plant can supply 6, 1 and 10 truckloads of cement daily and the daily requirements of the projects are 7, 5, 3 and 2 truckloads respectively. The transportation cost (in thousands of rupees) per truck load of cement from each plant to each project site are shown below.

Projects

	A	B	C	D
X	2	3	11	7
Y	1	0	6	1
Z	5	8	15	9

Plants

Determine the optimal distribution of the company so as to minimize the total transportation cost. Use VAM method to find the initial BFS. **(12 Marks)**

b. Solve the following assignment problem:

Machines

	M_1	M_2	M_3	M_4	M_5
J_1	11	17	8	16	20
J_2	9	7	12	6	15
J_3	13	16	15	12	16
J_4	21	24	17	28	26
J_5	14	19	12	11	13

Jobs

(08 Marks)

7 a. Define the following with respect to games:
   i) Pay-off
   ii) Zero-sum game
   iii) Saddle point. **(03 Marks)**

b. Solve the following game by Dominance principle:

Player B

	B_1	B_2	B_3	B_4
A_1	3	2	4	0
A_2	3	4	2	4
A_3	4	2	4	0
A_4	0	4	0	8

Player A

(06 Marks)

c. Solve the following game by graphical method:

Player B

	B_1	B_2	B_3	B_4
A_1	8	5	-7	9
A_2	-6	6	4	-2

Player A

(07 Marks)

d. Write a short note on decision trees. **(04 Marks)**

8 a. Write the outline of a basic tabu search algorithm. Explain it with the help of a minimum spanning tree problem with constraints. **(10 Marks)**

b. Write short notes on:
   i) Simulated annealing;   ii) Genetic algorithms. **(10 Marks)**

* * * * *