Sixth Semester B.E. Degree Examination, June/July 2016
Management and Entrepreneurship

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a. What is management? List the roles of management.   (04 Marks)
    b. What are the nature and characteristics of management?   (06 Marks)
    c. Distinguish between the administration and management.   (05 Marks)
    d. Explain the different skills and different levels of management.   (05 Marks)

2   a. Define planning. Explain briefly hierarchy of plans.   (05 Marks)
    b. Explain the different types of planning premises, with example.   (05 Marks)
    c. With neat diagram, explain the steps in decision making.   (06 Marks)
    d. Differentiate between strategic and tactical planning.   (04 Marks)

3   a. What are the types of organization? Explain with neat diagram line and staff organization.
                                                                                 (08 Marks)
    b. Briefly explain MBO and MBE.   (06 Marks)
    c. Explain the nature and importance of staffing.   (06 Marks)

4   a. What is leadership? What are the major approaches of leadership?   (06 Marks)
    b. Explain the steps in controlling.   (06 Marks)
    c. Compare the Maslow's need hierarchy theory with Herzberg's two factor theory.   (08 Marks)

PART – B

5   a. Define entrepreneur. Differentiate between entrepreneur and intrapreneur.   (07 Marks)
    b. Explain the characteristics of an entrepreneur and explain the stages in entrepreneurial
        process.   (08 Marks)
    c. Write a note on: growth of industrial entrepreneurship in India.   (05 Marks)

6   a. Explain the role of SSIs in the economic development.   (05 Marks)
    b. Define small scale industry. Discuss its important characteristics.   (06 Marks)
    c. Explain the steps for starting an SSI.   (05 Marks)
    d. List the different policies of SSI.   (04 Marks)

7   a. Explain the objectives and functions of NSIC.   (08 Marks)
    b. Write short notes on:
        i)   SISI (small industries service institutes)
        ii)   DIC (District Industries Centre)
        iii) SIDBI (Small industries development bank of India)
        iv)   SIDO (Small industries development organization).   (12 Marks)

8   a. Give the meaning of a project.   (02 Marks)
    b. Write the need and significance of project report.   (08 Marks)
    c. What are the steps involved in formulation of project report?   (05 Marks)
    d. What is project appraisal? What are the main stages of project appraisal?   (05 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2016
UNIX Systems Programming

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a.   Compare and explain : ANSI C and K and R C with examples.   **(08 Marks)**
      b.   List and explain feature test macros in POSIX systems.   **(08 Marks)**
      c.   Compare : execution of an API with execution of C library function. Also list any four error status codes with their meaning.   **(04 Marks)**

2   a.   What is file? Explain types of files with command examples.   **(06 Marks)**
      b.   Explain UNIX Kernel support for files with a neat sketch.   **(08 Marks)**
      c.   Write any three differences between :
        i)   Hard links and soft links   ii) C steam pointer and file descriptor.   **(06 Marks)**

3   a.   Explain file and record locking with C/C++ program.   **(08 Marks)**
      b.   Explain the following API's with their prototypes. :
        i) open   ii) read   iii) write   iv) close.   **(08 Marks)**
      c.   Write a C/C++ program to rename a file [use mv command /link and unlink APIs].**(04 Marks)**

4   a.   With a neat diagram, explain about termination ways for a process. Also write a C/C++ programs to display :
        i) Command line arguments   ii) Environment variables.   **(10 Marks)**
      b.   Explain setjmp and longjmp functions with their prototypes.   **(06 Marks)**
      c.   With neat sketch, explain memory structure/ layout of a C/C++ program that is to be executed.   **(04 Marks)**

PART – B

5   a.   What is race condition? Mention and explain routines to avoid race condition.   **(06 Marks)**
      b.   Explain the following :
        i) orphaned process ii) zombie process iii) terminal login iv) network login.   **(10 Marks)**
      c.   Explain : i) process group   ii) session.   **(04 Marks)**

6   a.   What is daemon? Explain characteristics and coding rules.   **(10 Marks)**
      b.   Write a C/C++ program to show the use of alarm API.   **(06 Marks)**
      c.   Define and explain : i) SIGCHLD signal   ii) waitpid function.   **(04 Marks)**

7   a.   What is inter-process communication? List any 4 mechanisms (IPC). Also write a C/C++ program that creates a child process to print a message.   **(08 Marks)**
      b.   Write a C/C++ program(s) to implement inter-process communication using FIFO file.   **(06 Marks)**
      c.   Explain briefly with examples : i) Message queues   ii) semaphores.   **(06 Marks)**

8   a.   Explain shared memory as an inter-process mechanism (IPC).   **(08 Marks)**
      b.   What are steam pipes? Explain passing of file descriptors.   **(06 Marks)**
      c.   Briefly explain client-server functions.   **(06 Marks)**

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Sixth Semester B.E. Degree Examination, June/July 2016
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 with a neat diagram, the phases of a compiler. Mention the input and output for each phase with an example, "position = initial + rate * 60". **(12 Marks)**

   b. Explain input buffering strategy used in lexical analysis phase. **(04 Marks)**

   c. Construct a transition diagram for relational operators. **(04 Marks)**

2 a. Show that the following grammar is ambiguous:
   $E \rightarrow E + E \mid E * E \mid (E) \mid id$
   Write an unambiguous grammar for the same. **(06 Marks)**

   b. Given the grammar
   $S \rightarrow (L) \mid \alpha$
   $L \rightarrow L, S \mid S$
   i)   Make necessary changes to make it suitable for LL(1) parsing.
   ii) Construct FIRST and FOLLOW sets.
   iii) Construct the predictive parsing table.
   iv) Show the moves made by the predictive parser on the input (a, (a, a)). **(10 Marks)**

   c. Write a recursive descent parser for the grammar: $S \rightarrow cAd$, $A \rightarrow ab \mid a$ and for the input "cad" trace the parser. **(04 Marks)**

3 a. Show that the following grammar is not LL(1) without constructing parsing table.
   $S \rightarrow iCtSS' \mid \alpha$
   $S' \rightarrow eS \mid \in$
   $C \rightarrow b$ **(06 Marks)**

   b. What is meant by handle pruning? Show the working of a shift reduce parser for accepting $id + id * id$, considering the grammar:
   $E \rightarrow E + T \mid T$
   $T \rightarrow T * F \mid F$
   $F \rightarrow (E) \mid id$ **(10 Marks)**

   c. For the following grammar $S \rightarrow 0S1 \mid 01$, indicate the handle in the following right sentential form 00001111. **(04 Marks)**

4 a. Consider the following grammar:
   $S \rightarrow L = R \mid R$
   $L \rightarrow *R \mid id$
   $R \rightarrow L$
   i)   Obtain LR(0) items.
   ii) Compute FIRST and FOLLOW.
   iii) Obtain SLR parsing table.
   iv) Check whether the given grammar is SLR or not. **(10 Marks)**

   b. Consider the following grammar:
   $S \rightarrow AA$
   $A \rightarrow Aa \mid b$
   i)   Compute sets of LR(1) items.
   ii) Construct canonical LR(1) parsing table.
   iii) Show the parsing steps for the string "baaba". **(10 Marks)**

PART – B

5 a. For the given productions shown below, write semantic rules and construct annotated parse tree for $3*5+4n$

$L \to En$, $E \to E1+T$, $E \to T$, $T \to T1*F$, $T \to F$, $F \to (E)$, $F \to digit$ **(08 Marks)**

   b. Obtain SDD for simple type declaration. Construct a dependency graph for the declaration float a, b, c along with evaluation order.   **(08 Marks)**

   c. Define the following with examples:
   i) S – attributed definitions
   ii) L – attributed definitions.   **(04 Marks)**

6 a. Explain how DAG will help in intermediate code generation. Construct a DAG and a three address-code for the expression $a+a*(b-c)+(b-c)*d$ **(08 Marks)**

   b. Explain the following with an example:
   i) Quadruples   ii) Triples   iii) Indirect triples   **(06 Marks)**

   c. Explain syntax directed translation of switch statement.   **(06 Marks)**

7 a. Describe the general structure of an activation record. Explain the purpose of each item in the activation record.   **(08 Marks)**

   b. What is garbage collection? Explain the design goals of garbage collector.   **(10 Marks)**

   c. Define local and non-local data.   **(02 Marks)**

8 a. Briefly explain various issues in code generation phase.   **(10 Marks)**

   b. Generate the 3-address statements for the following programming construct and obtain the basic blocks for generated code.

```
    i = 1
do
    sum = sum + a[i] * b[i]
    i = i + 1
while (i < = 20)
```
     (10 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2016
Computer Networks – II

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. Differentiate between connection oriented and connectionless services. **(04 Marks)**
   b. Define routing algorithm. Explain the Bellman – Ford algorithm with an example. **(10 Marks)**
   c. A 64 – kilobyte message is to be transmitted over two hops in a network. The network limits packets to a maximum size of 2 kilobytes, and each packet has a 32 – byte header. The transmission lines in the network are error free and have a speed of 50 Mbps. Each hop is 1000 km long. How long does it take to get the message from source to destination?
      (06 Marks)

2 a. With neat diagram explain leaky bucket algorithm used for policing. **(08 Marks)**
   b. Explain the FIFO and priority queue scheduling for managing traffic at packet level.
      (08 Marks)
   c. Write a note on closed loop control in packet switching network. **(04 Marks)**

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

4 a. Explain the three – way handshake for establishing a TCP connection. **(08 Marks)**
   b. Write a note on RIP protocol. **(04 Marks)**
   c. Explain the border gateway protocol. **(08 Marks)**

PART – B

5 a. Define domain name system. Explain DNS message format. **(08 Marks)**
   b. Explain in detail any two major categories of threats to network security. **(08 Marks)**
   c. Write a note on network management system. **(04 Marks)**

6 a. Explain the overview of differentiated services operation of QOS with neat diagram.
      (08 Marks)
   b. Explain multiprotocol Lable switching (MPLS) and its packet format. **(06 Marks)**
   c. Write a note on P2P connection in context with overlay networks. **(06 Marks)**

7 a. Define data compression. Explain overview of digital voice process in multimedia networking. **(08 Marks)**
   b. Explain in brief SIP. **(08 Marks)**
   c. Write a short note on H·323 protocol. **(04 Marks)**

8 a. Explain types of attack in Ad-hoc networks. **(06 Marks)**
   b. Explain LEACH clustering protocol in wireless sensor network. **(08 Marks)**
   c. Write a note on Zig-Bee technology. **(06 Marks)**

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Sixth Semester B.E. Degree Examination, June/July 2016
Computer Graphics & Visualization

Time: 3 hrs.

Max. Marks:100

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

PART – A

1   a. With neat diagrams, explain different graphics architectures.   (13 Marks)
    b. With a neat diagram, explain the elements of a computer graphics system. (07 Marks)

2   a. Explain two forms of text. Mention GLUT library functions for each of the form. (06 Marks)
    b. Explain seven major groups of openGL graphics functions.   (07 Marks)
    c. Explain index color model. How it is supported in GLUT library.   (07 Marks)

3   a. What are the major characteristics that describe the logical behaviour of an input device? Explain how openGL provides the functionality of each of the classes of logical input devices. (08 Marks)
    b. What is double buffering? How it is implemented in openGL?   (05 Marks)
    c. What is display list? Write openGL code segment that generate a blue colored square using display list. (07 Marks)

4   a. Explain different frames in openGL.   (08 Marks)
    b. With the help of code segments, explain the modeling of colored cube and also explain bilinear interpolation. (12 Marks)

PART – B

5   a. Explain translation, scaling and rotation in a homogeneous coordinate system. (10 Marks)
    b. What is concatenation of transformation? Derive concatenated final matrix M for rotating a 3D object about a fixed point. (10 Marks)

6   a. With neat diagram explain the following projections in openGL along with APIs provided i) perspective   ii) Parallel. (10 Marks)
    b. Explain different classical viewings   (10 Marks)

7   a. Briefly explain the different classification of light and material interaction. How material properties are specified in openGL? (10 Marks)
    b. What are the different types of light sources? Explain.   (10 Marks)

8   a. What are the basic implementation strategies? Explain.   (10 Marks)
    b. What is clipper? Briefly explain Cohen Sutherland line clipping without code. Discuss four cases. (10 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2016
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 the following with reference to linear programming model.
        i)   Unbounded solution
        ii) Feasible solution
        iii) Slack variable
        iv) Surplus variable
        v) Optimal Solution.   **(10 Marks)**

  b. The whit window company is a company with only 3 employees which makes two different kinds of handcrafted windows a wood framed and an aluminum framed window. They earn $60 profit for each wood framed window and $30 profit for each aluminum framed window. Doug makes the wood frames and can make 6 per day. Linda makes the aluminium frames and can make 4 per day. Bob forms and cuts the glass and can make 48 square feet of glass per day. Each wood framed window uses 6 square foot of glass and each aluminum framed windows used 8 square feet of glass. The company wishes to determine how many windows of each type to produce per day to maximize total profit. Formulate it as LPP and solve graphically.   **(10 Marks)**

2 a. Find all the basic solutions to the following systems of equations identifying in each case the basic and non basic variable and finally the optimal solution.
    Maximize $Z = 5x_1 + 3x_2 + 4x_3$
    Subject to
    $2x_1 + x_2 + x_3 \leq 20$
    $3x_1 + x_2 + 2x_3 \leq 30$
    $x_1, x_2, x_3 \geq 0$.   **(10 Marks)**

  b. Use the simplex method to solve the following problem.
    Maximize $Z = x_1 + 2x_2 + 4x_3$
    Subject to
    $3x_1 + x_2 + 5x_3 \leq 10$
    $x_1 + 4x_2 + x_3 \leq 8$
    $2x_1 + 2x_3 \leq 7$
    $x_1, x_2, x_3 \geq 0$.   **(10 Marks)**

3 a. Solve the following LPP using two phase method.
    Minimize $Z = 2x_1 + 3x_2 + x_3$
    Subject to
    $x_1 + 4x_2 + 2x_3 \geq 8$
    $3x_1 + 2x_2 \geq 6$
    $x_1, x_2, x_3 \geq 0$.   **(10 Marks)**

b. Use Big M method to solve the problem

Minimize $Z = 3x_1 + 2x_2 + 4x_3$

Subject to

$2x_1 + x_2 + 3x_3 = 60$

$3x_1 + 3x_2 + 5x_3 \geq 120$

$x_1, x_2, x_3 \geq 0.$ **(10 Marks)**

4 a. Solve by revised simplex method

Maximize $Z = 6x_1 - 2x_2 + 3x_3$

Subject to

$2x_1 - x_2 + 2x_3 \leq 2$

$x_1 + 4x_3 \leq 4$ and $x_1, x_2, x_3 \geq 0.$ **(10 Marks)**

b. Use duality to solve ;

Minimize $Z_x = 3x_1 + x_2$

Subject to

$x_1 + x_2 \geq 1$

$2x_1 + 3x_2 \geq 2, \quad x_1, x_2, x_3 \geq 0.$ **(10 Marks)**

PART – B

5 a. Solve the following problem by dual simplex method.

Minimize $Z = 2x_1 + x_2$

Subject to

$3x_1 + x_2 \geq 3$

$4x_1 + 3x_2 \geq 6$

$x_1 + 2x_2 \geq 3$

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

b. Solve the following problem by using lower bound technique.

Maximize $Z = 10x_1 + 15x_2 + 8x_3$

Subject to

$x_1 + 2x_2 + 2x_3 \leq 200$

$2x_1 + x_2 + x_3 \leq 220$

$3x_1 + x_2 + 2x_3 \leq 180$

$x_1 \geq 10, \quad x_2 \geq 20, \quad x_3 \geq 30.$ **(10 Marks)**

6 a. Hindustan construction company needs 3, 3, 4 and 5 million cubic feet of fill at four earthen dams-sites in Punjab. It can transfer the fill from three mounds A, B and C where 2, 6 and 7 million cubic feet of fill is available, cost of transporting one million cubic feet of fill from mounds to the four sites in lakhs are given in the table.

Find IBFs by using any method and check for optimality. **(10 Marks)**

From	To I	II	III	IV	a_i
A	15	10	17	18	2
B	16	13	12	13	6
C	12	17	20	11	7
b_J	3	3	4	5	

b. Five men are available to do five different jobs. From past records the time (in hrs) that each man takes to do each job is known and given in the following table :

Job

		I	II	III	IV	V
	A	2	9	2	7	1
	B	6	8	7	6	1
Man	C	4	6	5	3	1
	D	4	2	7	3	1
	E	5	3	9	5	1

Find the assignment of men to jobs that will minimize the total time taken. **(10 Marks)**

7 a. Define the following with reference to game theory with an example :
   i) Pure strategy
   ii) Mixed strategy
   iii) Saddle point
   iv) Pay off matrix
   v) 2 person zero sum games. **(10 Marks)**

   b. In a game of matching coins with two players, suppose one player wins Rs 2 when there are two heads and wins nothing when there are two tails and loses Rs 1 when there are one head and one tail. Determine the payoff matrix, the best strategies for each player and the value of the game. **(10 Marks)**

8   Explain briefly the following
   a. Tabu search
   b. Genetic Algorithm
   c. Simulated annealing technique
   d. Meta heuristics. **(20 Marks)**

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