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06AL61

**Sixth Semester B.E. Degree Examination, December 2012**  
**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? Considering management as operational process, explain its various sub – processes. (08 Marks)  
b. Explain required change in skill – mix of a manager, with respect to his level in an organization. (08 Marks)  
c. What are the features of Bureaucratic administration? (04 Marks)
- 2 a. Define planning. Compare strategic planning with tactical planning. (06 Marks)  
b. What is rational decision? Explain steps involved in the process of rational decision making. (08 Marks)  
c. What are different environments of decision making? (06 Marks)
- 3 a. Explain major principles to be followed to develop sound and efficient organizational structure. (08 Marks)  
b. What is span of management / span of control? What is significance of number of relations between manager and subordinates in span of control? (06 Marks)  
c. What are different advantages of decentralization? (06 Marks)
- 4 a. What is leadership? What are the major functions of a leader? (08 Marks)  
b. Explain Maslow's Need – Hierarchy theory. (08 Marks)  
c. Explain the purpose of control system. (04 Marks)

**PART - B**

- 5 a. What are the major characteristics of an entrepreneurship? (08 Marks)  
b. Give the classification of entrepreneurs based on functional characteristics. (04 Marks)  
c. What are internal and external barriers of entrepreneurship? (08 Marks)
- 6 a. Explain using flowchart, formalities for setting up small scale industry (SSI) unit. (10 Marks)  
b. Give the classification of different state level agencies for the promotion of SSI. (10 Marks)
- 7 a. Explain objectives and functions of infrastructure agency KIADB. (08 Marks)  
b. What is TECSOK? Explain services offered by TECSOK. (08 Marks)  
c. Write a note on single window load scheme of KSFC. (04 Marks)
- 8 a. What are the criteria for selecting a project? (08 Marks)  
b. Compare PERT and CPM project scheduling techniques. (08 Marks)  
c. What is project appraisal? Give main stages of project appraisal. (04 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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06CS62

**Sixth Semester B.E. Degree Examination, December 2012**  
**Unix System Programming**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain the different functions used to query system-wide limits. Write a C program to demonstrate how to use the functions to query the limits. (10 Marks)
- b. What is an API? List the functions which are performed by the Unix system APIs. Also explain why calling an API is more time-consuming than calling a user defined functions. (06 Marks)
- c. Differentiate between ANSIC and C++. (04 Marks)
- 2 a. Explain the different types of Unix or POSIX files. Also explain how to create these files. (10 Marks)
- b. Differentiate between C stream pointers and file descriptors. (05 Marks)
- c. Differentiate between hard link and symbolic links. (05 Marks)
- 3 a. Explain the following file APIs with their prototypes:  
i) write ii) lseek iii) link iv) stat (10 Marks)
- b. Discuss the file and record locking in unix system. Explain the fcntl API for file locking. (10 Marks)
- 4 a. What are the different ways of process termination? Differentiate between exit and –exit functions. (06 Marks)
- b. Write a C program to echo all its command-line arguments to standard output. (04 Marks)
- c. Explain the setjmp and longjmp functions with its prototypes. Illustrate the use of setjmp and longjmp function, with a example program. (10 Marks)

**PART – B**

- 5 a. Explain how vfork function is different than fork function. Also, write a program to demonstrate both fork and vfork functions. (10 Marks)
- b. Explain process groups and sessions. Discuss their relationship, with controlling terminal. (10 Marks)
- 6 a. Explain the following APIs related to signals with their prototypes:  
i) Sigprocmask ii) Sigaction iii) Sigsetjmp iv) kill. (10 Marks)
- b. What are Daemon processes? Explain the Daemon characteristics and coding rules. (10 Marks)
- 7 a. What are pipes? List the two limitations of pipes. Explain how to create a pipe. Write a program to send data from parent to child over a pipe. (10 Marks)
- b. Explain how client and server will communicate using FIFOs. (05 Marks)
- c. Explain the following functions related to message queues:  
i) msgget ii) msgsnd (05 Marks)
- 8 a. Explain the following socket programming functions with their prototypes:  
i) socket ii) connect iii) listen iv) accept. (10 Marks)
- b. Explain the different functions which will be used for exchanging data on sockets. (10 Marks)

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06CS63

**Sixth Semester B.E. Degree Examination, December 2012**  
**Compiler Design**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. How to handle reserved words and identifiers during recognition of tokens? Explain. (07 Marks)
- b. Discuss three types of software productivity tools. (06 Marks)
- c. Enlist algebraic laws for regular expression. (07 Marks)
- 2 a. Consider the production given below :  
 $S \rightarrow CC \mid CSC$   
 Prof. James wanted to parse input string CCCCCC, using recursive descent parsing. Is it possible to do that? Justify your answer. (04 Marks)
- b. Remove left recursion from the grammar given below :  
 $S \rightarrow (M) \mid a$   
 $M \rightarrow M ; S \mid S$ . (04 Marks)
- c. Enlist the conditions to test whether a given grammar is LL(1). (03 Marks)
- d. Construct predictive parsing table for the following grammar  
 $S \rightarrow a AB b$   
 $A \rightarrow A c \mid \epsilon$   
 $B \rightarrow d \mid \epsilon$ . (09 Marks)
- 3 a. Write an algorithm for computation of CLOSURE of LR(0). (02 Marks)
- b. Construct LR(0) parsing table for the following grammar  
 $S \rightarrow Ac$   
 $A \rightarrow AB \mid \epsilon$   
 $B \rightarrow a B \mid b$ . (10 Marks)
- c. Consider the grammar  $A \rightarrow (A) \mid a$ . Construct the DFA of sets of LR(0) items. Show the parsing actions for the input string ((a)). Clearly show states and symbols on the stack. (08 Marks)
- 4 a. Consider  
 $S \rightarrow id \mid V : = E$   
 $V \rightarrow id$   
 $E \rightarrow V \mid n$   
 Construct canonical LR(1) parsing table. (14 Marks)
- b. Write a YACC specification for desk calculator with error recovery. (06 Marks)

**PART – B**

- 5 a. Write semantic rules to compute  $5 * 6$ , using a grammar suitable for top down parsing. (07 Marks)
- b. Give syntax directed definition for simple type declaration. Construct dependency graph for the declaration, int id<sub>1</sub>, id<sub>2</sub>. (08 Marks)
- c. Write SDD for while statement. (05 Marks)

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- 6 a. Describe syntax directed definition for flow of control statements. (10 Marks)  
b. Generate three address code for Boolean operations. (10 Marks)
- 7 a. Write intermediate code for the following :  
     $a = f(b[i])$ . (04 Marks)  
b. Explain the procedures to maintain display, with an example. (08 Marks)  
c. Discuss the performance metrics to be considered while designing a garbage collector. (08 Marks)
- 8 a. Write machine code equivalent for the following :  
    'if  $x < y$  goto L' (04 Marks)  
b. Write an algorithm for partitioning three address instructions into basic blocks. Consider intermediate code to set a  $10 \times 10$  matrix to an identity matrix. Apply an algorithm to convert this code into basic blocks. (08 Marks)  
c. Discuss the different issues in the design of the function getReg(I). (08 Marks)

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06CS64

**Sixth Semester B.E. Degree Examination, December 2012**  
**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. Explain and derive delays in datagram packet switching and compare it with message switching. (10 Marks)
- b. Consider the network given below in Fig.Q.1(b). Use Dijkstra's algorithm to find shortest paths from source node 5 to all other destination nodes. Find the shortest path tree from node 5 to other nodes. (10 Marks)

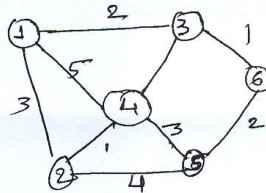


Fig.Q.1(b)

- 2 a. Explain Fair queuing and weighted fair queuing mechanism of traffic management at the packet level. (10 Marks)
- b. A host in an organization has an IP address 150.32.64.34 and subnet mask 255.255.240.0. What is the address of the subnet? What is the range of IP addresses that a host can have on this subnet? (10 Marks)
- 3 a. Explain IPv6 basic header format. (10 Marks)
- b. Explain OSPF common header fields and also OSPF hello packet format. (10 Marks)
- 4 a. Explain B-ISDN reference model. (06 Marks)
- b. Explain ATM cell header format. (07 Marks)
- c. Briefly explain various QoS parameters and traffic descriptors with respect to ATM networks. (07 Marks)

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**PART – B**

- 5 a. Write a note on structure of management information. (08 Marks)  
b. Apply RSA and do the following:  
i) Suppose  $P = 5$ ,  $q = 11$  find  $e$  and  $d$ .  
ii) Encrypt the following to get the cipher texts  $P_1 = 18$ ,  $P_2 = 19$  and  $P_3 = 1$ .  
iii) Decrypt the ciphertexts obtained above. (12 Marks)
- 6 a. Explain VPN and its types based on tunneling. (07 Marks)  
b. Explain the various types of resource allocation schemes. (06 Marks)  
c. Write a note on overlay networks. (07 Marks)
- 7 a. Explain the session initiation protocol. (10 Marks)  
b. Explain Shannon's coding theorem in detail. (10 Marks)
- 8 a. Write a note on the types of attacks in Ad-hoc networks. (06 Marks)  
b. Differentiate between intracluster and intercluster protocols for WSN. (07 Marks)  
c. Write a short note on Zigbee technology. (07 Marks)

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06CS65

**Sixth Semester B.E. Degree Examination, December 2012**  
**Computer Graphics and Visualization**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Briefly explain any six applications of computer graphics. (06 Marks)  
 b. Explain the concept of pinhole camera with appropriate diagrams and equations. (08 Marks)  
 c. Explain the pipeline architecture in computer graphics. (06 Marks)
- 2 a. Explain the different types of polygons in OpenGL. (07 Marks)  
 b. Write a program in OpenGL to display the following Fig.Q.2(b) on a raster display system. Assume suitable coordinates for the vertices. (08 Marks)

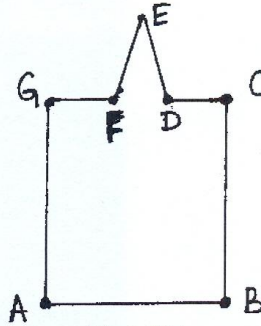


Fig.Q.2(b)

- c. What are two forms of text? Explain. (05 Marks)
- 3 a. Explain the logical classification of I/O devices with examples. (06 Marks)  
 b. How are menus and submenus created in OpenGL? Illustrate with an example. (06 Marks)  
 c. Using XOR mode of operation, how are erasable lines drawn in OpenGL. Write OpenGL code and explain. (08 Marks)
- 4 a. What are the data structures required to define a cube? (06 Marks)  
 b. Write the transformation matrices for 2D translation, rotation and scaling and explain. (06 Marks)  
 c. What are vertex arrays? Explain how vertex arrays can be used to model a color cube. (08 Marks)

**PART – B**

- 5 a. Show that the following sequence commute:
  - i) A rotation and a uniform scaling.
  - ii) Two rotations about the origin
 Note: Assume 2D. (06 Marks)

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- b. In two dimensions, we can specify a line by the equation  $y = mx + h$ . Find an affine transformation to reflect two dimensional points about this line. (06 Marks)
- c. Write an OpenGL program to rotate a triangle whose vertices are  $A(0, 0)$ ,  $B(0, 0)$ ,  $C(5, 10)$  about the reference point  $(5, 10)$  by  $45^\circ$ . Use builtin OpenGL functions for transformations. (08 Marks)
- 6 a. Derive the perspective projection matrix. (08 Marks)
- b. Explain `glFrustum(..)` API with syntax. (08 Marks)
- c. Bring out the differences between object-space algorithms and image space algorithms. (04 Marks)
- 7 a. Explain the different types of light sources in graphics. (10 Marks)
- b. Explain with code the approximation of a sphere by recursive subdivision. (10 Marks)
- 8 a. Explain the Cohen-Sutherland line clipping algorithm. (10 Marks)
- b. Explain the Z-buffer algorithm for hidden surface removal. How do you enable the Z-buffer algorithm in OpenGL? (10 Marks)

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06CS661

**Sixth Semester B.E. Degree Examination, December 2012**  
**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. What is operations research? Mention six phases of an operations research study. (06 Marks)  
 b. Old hens can be bought at Rs.50/- each but young ones cost Rs.100/- each. The old hens lay 3 eggs/week and young hens 5 eggs/week. Each egg cost Rs.2/- A hen costs Rs.5/- per week to feed. If a person has only Rs.2000/- to spend for hens, formulate the problem to decide how many of each kind of hen should he buy? Assume that he cannot house more than 40 hens. (07 Marks)  
 c. Solve the following L.P.P. graphically,  
 Maximize  $z = 100x_1 + 40x_2$   
 Subject to  $5x_1 + 2x_2 \leq 1000$   
 $3x_1 + 2x_2 \leq 900$   
 $x_1 + 2x_2 \leq 500$  and  
 $x_1, x_2 \geq 0$  (07 Marks)
- 2** a. Mention five assumptions of linear programming. (05 Marks)  
 b. Define and illustrate with examples slack variables and surplus variables. (04 Marks)  
 c. Solve the following LPP:  
 Maximize  $z = 15x_1 + 6x_2 + 9x_3 + 2x_4$   
 Subject to  $2x_1 + x_2 + 5x_3 + 6x_4 \leq 20$   
 $3x_1 + x_2 + 3x_3 + 25x_4 \leq 24$   
 $7x_1 + x_4 \leq 70$   
 $x_1, x_2, x_3 \geq 0$  (11 Marks)
- 3** a. Explain two phase technique to solve LPP in simplex method. (06 Marks)  
 b. Use Big-M method to solve the following LPP:  
 Minimize  $z = 4x_1 + 3x_2$   
 Subject to  $2x_1 + x_2 \geq 10$   
 $-3x_1 + 2x_2 \leq 6$   
 $x_1 + x_2 \geq 6$   
 and  $x_1, x_2 \geq 0$  (14 Marks)
- 4** a. What are the important characteristics of duality? (05 Marks)  
 b. Explain the conceptual procedure of revised simplex method in standard form. (10 Marks)

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- 4 c. Write the dual of the following LPP:

$$\text{Minimize } z = 3x_1 - 6x_2 + 4x_3$$

$$\text{Subject to } 4x_1 + 3x_2 + 6x_3 \geq 9$$

$$x_1 + 2x_2 + 3x_3 \geq 6$$

$$6x_1 - 2x_2 - 2x_3 \leq 10$$

$$x_1 - 2x_2 + 6x_3 \geq 4$$

$$2x_1 + 5x_2 - 3x_3 \geq 6$$

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

(05 Marks)

**PART – B**

- 5 a. Explain sensitivity analysis. (08 Marks)  
 b. Use the dual simplex method to solve the following LPP:

$$\text{Maximize } z = -2x_1 - 2x_2 - 4x_3$$

$$\text{Subject to } 2x_1 + 3x_2 + 5x_3 \geq 2$$

$$3x_1 + x_2 + 7x_3 \leq 3$$

$$x_1 + 4x_2 + 6x_3 \leq 5$$

$$\text{and } x_1, x_2, x_3 \geq 0$$

(12 Marks)

- 6 a. Explain different steps in Hungarian algorithm to solve an assignment problem. (08 Marks)  
 b. Find the optimal transportation cost of the following matrix by using least cost method. (12 Marks)

	A	B	C	D	E	Supply
P	4	1	2	6	9	100
Q	6	4	3	5	7	120
R	5	2	6	4	8	120
Demand	40	50	70	90	90	

- 7 a. Solve the game whose pay off matrix is given by, (08 Marks)

		A		
		I	II	III
B	I	2	-1	8
	II	-4	-3	4
	III	-8	-4	0
	IV	1	-6	-2

- b. Explain the following:  
 i) Minimax and maximin principles.  
 ii) Pure and mixed strategies.  
 iii) Two person zero sum game.  
 iv) Dominance principles.

(12 Marks)

- 8 a. Give a note on basic simulated annealing algorithm. (05 Marks)  
 b. Write an outline of a basic genetic algorithm. (05 Marks)  
 c. Explain table search algorithm. (05 Marks)  
 d. Explain decision trees. (05 Marks)

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