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10AL61

Sixth Semester B.E. Degree Examination, June/July 2014
Management and Entrepreneurship

Time: 3 hrs.

Max. Marks: 100

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

PART – A

- 1 a. Explain the functional areas of management. (10 Marks)
b. Discuss the roles of management. (06 Marks)
c. Write four differences between administration and management. (04 Marks)
- 2 a. What is the nature of planning? Explain the importance and purpose of planning. (10 Marks)
b. Explain the process of decision making. (10 Marks)
- 3 a. What does organization mean? Explain any four types of organizations. (10 Marks)
b. Discuss the meaning, importance and factors governing the span of management. (10 Marks)
- 4 a. What is leadership? Explain. (04 Marks)
b. Discuss the characteristics of motivation. (06 Marks)
c. Define co-ordination. What are its characteristics? (05 Marks)
d. Differentiate between co-ordination and co-operation. (05 Marks)

PART – B

- 5 a. In detail, discuss on “women entrepreneurs”. (10 Marks)
b. Compare intrapreneur, entrepreneur and manager. (10 Marks)
- 6 a. Explain the impact of liberalization, privatization and globalization on small scale industry. (06 Marks)
b. Explain GATT and WTO. (06 Marks)
c. Explain the role of : (08 Marks)
i) SSIB ii) NSIC iii) KVIC iv) SIDO.
- 7 a. Explain the role of SSIDC in development of SSI. (06 Marks)
b. Explain the role of district industries centers. (06 Marks)
c. Write a note on ICICI and IDBI. (08 Marks)
- 8 a. Explain the Guidelines by planning commission for project report. (10 Marks)
b. What is network analysis? Explain its importance and list the various networking techniques for project scheduling. (05 Marks)
c. With a brief explanation, explain PERT and CPM. (05 Marks)

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10CS62

Sixth Semester B.E. Degree Examination, June/July 2014
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. What are the major differences between ANSI C and K&R C? Explain with examples. (08 Marks)
b. What is POSIX API? Explain the commonly occurring error status codes and their meaning. (08 Marks)
c. Write a C++ program to check and display the POSIX version constant of the system on which it is run. (04 Marks)
- 2 a. Discuss with a neat diagram the different data structures supported by Unix kernel for file manipulation. (08 Marks)
b. List all the attributes of UNIX or POSIX file along with their meaning. Which are the attributes that remains unchanged for the entire life of the file and why? (08 Marks)
c. Differentiate between hard link and symbolic link. (04 Marks)
- 3 a. Explain the following API's along with their prototype definition and possible cause for failure:
(i) open (ii) write (iii) fcntl (iv) stat (12 Marks)
b. How do you access and modify the time stamps of a file? Explain the prototype used for that. Write a program to illustrate the usage of the above prototype. (08 Marks)
- 4 a. Explain the use of setjmp and longjmp functions, with examples. (08 Marks)
b. With related data structure, explain the Unix kernel support for a process. (08 Marks)
c. What are the different ways in which a process can terminate normally? (04 Marks)

PART – B

- 5 a. List and explain the different forms of exec function with prototype declaration along with meaning. Write a program to echo all its command line arguments and environment variables. (12 Marks)
b. What is process accounting? Write a program to illustrate the generation of accounting data. (08 Marks)
- 6 a. What are signals? List any four signals along with brief explanation. Write a program to setup signals handler for SIGALRM and SIGINT signals. (08 Marks)
b. What are daemon processes? Explain the BSD facility adopted by daemon processes for error handling. (08 Marks)
c. Write a C++ program to illustrate the implementation of the Unix Kill command using the Kill API. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
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10CS63

Sixth Semester B.E. Degree Examination, June / July 2014
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 the various phases of a compiler with the help of neat diagram. (08 Marks)
 b. Give the formal definitions of operations on languages with notations. (04 Marks)
 c. Write the transition diagram to recognize the token below:
 i) relop (relational operations)
 ii) unsigned number. (08 Marks)
2. a. Give the rules for constructing FIRST and FOLLOW sets. (06 Marks)
 b. Construct the predictive parsing table by making necessary changes to the grammar given below:
 $E \rightarrow E + T \mid T$
 $T \rightarrow T * F \mid F$
 $F \rightarrow (E) \mid id$ (10 Marks)
 c. Give the formal definition of CFG with an example. (04 Marks)
3. a. What is a shift-reduce parser? Explain the conflicts that may occur during shift-reduce parsing. List the actions of shift-reduce parser. (06 Marks)
 b. Form the Action / Goto table for the following grammar:
 $S \rightarrow Aa \mid bAc \mid Ba \mid bBa$
 $A \rightarrow d$
 $B \rightarrow d$
 Justify whether the grammar is LR(0) or not. (14 Marks)
4. a. Construct the canonical LR(1) Item sets for the following grammar:
 $S \rightarrow AA$
 $A \rightarrow aA \mid b$ (10 Marks)
 b. Construct LALR parsing table for the grammar shown in Q4 (a) using LR(1) items. (10 Marks)

PART – B

5. a. Define inherited and synthesized attributes. Give examples. (06 Marks)
 b. Give the SDD for simple desk calculator and draw dependency graph for expression, $1 * 2 * 3 * (4 + 5) n$ (10 Marks)
 c. Write SDD that generates either a basic type or an array type. (04 Marks)
6. a. Draw the DAG for the expression, $a + a * (b - c) + (b - c) * d$. Show the steps for constructing the same. (10 Marks)
 b. Explain the following with examples: i) Quadruples ii) Triples. (06 Marks)
 c. Write the three address code for the expression:
 $a + a * (b - c) + (b - c) * d$ (04 Marks)

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- 7 a. Give the general structure of an activation record. Explain the purpose of each component. (08 Marks)
- b. Explain the performance metrics that must be considered while designing garbage collector. (08 Marks)
- c. Give the memory hierarchy configurations of modern computer highlighting size and access times. (04 Marks)
- 8 a. Explain the main issues in code generation. (10 Marks)
- b. For the following program segment:
for i = 1 to 10 do
 for j = 1 to 10 do
 a[i, j] = 0 . 0
 for i = 1 to 10 do
 a[i, i] = 1.0
Generate intermediate code and identify basic blocks. (10 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2014
Computer Network – II

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Differentiate between connection oriented and connectionless services. (05 Marks)
- b. Compare the datagram packet switching and virtual packet switching. (06 Marks)
- c. Explain the Dijkstra's routing algorithm, with an example. (09 Marks)
- 2 a. Explain the FIFO and priority queue scheduling for managing traffic at packet level. (08 Marks)
- b. Define congestion control with graph. Explain the leaky bucket algorithm for policing the traffic at flow level. (12 Marks)
- 3 a. Explain :
 - i) IP address classification
 - ii) Subnet addressing. (10 Marks)
- b. Give the format of IPV6 basic header. Compare IPV6 with IPV4. (10 Marks)
- 4 a. Explain OSPF protocol and its operation. (10 Marks)
- b. Write a note on :
 - i) IGMP protocol
 - ii) Mobile IP. (10 Marks)

PART – B

- 5 a. Write a note on only Two :
 - i) Remote login protocols
 - ii) File transfer and FTP
 - iii) World wide web and HTTP. (08 Marks)
- b. Define network management and explain SNMP and SNMP messages. (06 Marks)
- c. Compare secret key and public key cryptography systems. (06 Marks)
- 6 a. Explain the differentiated services QoS with a neat diagram. (08 Marks)
- b. Explain VPN and its types based on tunneling. (08 Marks)
- c. Explain the need for overlay networks. (04 Marks)
- 7 a. Briefly explain the MPEG standards and frame types for compression. (06 Marks)
- b. Explain the Huffman encoding, with an example. (06 Marks)
- c. With a neat diagram, explain the H.323 components and list the steps in signaling. (08 Marks)
- 8 a. Explain the wireless routing protocol for AD – HoC networks. (05 Marks)
- b. Briefly explain the direct and multihop routing of intracluster routing protocol, with the help of relevant diagrams. (06 Marks)
- c. Write short notes on :
 - i) Clustering in sensor networks
 - ii) Security vulnerabilities of AD – HoC networks. (09 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2014
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. “Computer graphics is an essential applied domain in recent years”. Justify. (06 Marks)
 - b. Explain the pinhole camera imaging system, with a neat block diagram. (06 Marks)
 - c. With a neat diagram, explain the graphics pipeline architecture to render an image. (08 Marks)
- 2
 - a. Explain the seven major groups of OpenGL API functions, with examples for each function. (10 Marks)
 - b. Explain the color contribution for rendering an image in computer graphics. (10 Marks)
- 3
 - a. What is a measure and trigger of a logical input device? Explain the different modes to obtain the measure, with example. (06 Marks)
 - b. What is a display list? How it increases the performance of a graphics system? Explain with example. (06 Marks)
 - c. List out the characteristics of a good interactive program, with example for each. (08 Marks)
- 4
 - a. Explain different frame coordinates in OpenGL, with suitable example. (10 Marks)
 - b. Explain translation, rotation and scaling of objects in 2 – dimensions. (10 Marks)

PART – B

- 5
 - a. How an object transformation is implemented in OpenGL? Explain with suitable example. (10 Marks)
 - b. What are quaternions? How it is useful in a three-dimensional space? (10 Marks)
- 6
 - a. Explain different types of views in graphics system. (06 Marks)
 - b. How perspective projection differs from orthogonal projection? Give OpenGL functions for the same. (06 Marks)
 - c. Write a program to display a set of values $\{f_i\}$ as a rectangular mesh. (08 Marks)
- 7
 - a. Explain Cohen–Sutherland clipping algorithm without codes. Explain its advantage over Liang Barsky algorithm. (10 Marks)
 - b. Explain the phong lighting model. (10 Marks)
- 8

Write a short notes on :

 - a. Light sources
 - b. Liang Barsky clipping algorithm
 - c. Hidden surface removal
 - d. Rasterization. (20 Marks)

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10IS65

Sixth Semester B.E. Degree Examination, June/July 2014
Software Testing

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1
 - a. Define the following :
 - i) Error
 - ii) fault
 - iii) failure
 - iv) incident
 - v) test
 - vi) test case. (06 Marks)
 - b. Differentiate between functional testing and structural testing. (06 Marks)
 - c. With a neat diagram, explain the SATM(Simple Auto Mated Teller Machine) system. (08 Marks)

- 2
 - a. What are the limitations of boundary value analysis? (04 Marks)
 - b. Differentiate between weak robust equivalence class testing and strong robust equivalence class testing with an example. (08 Marks)
 - c. Explain about decision tables. Construct decision table of the triangle problem, it accepts three integers a, b and c as 3 sides inputs : equilateral, scalene, isosceles or not a triangle and satisfy the following conditions $a < b + c$, $b < a + c$ and $c < a + b$. (08 Marks)

- 3
 - a. Explain the different structural test coverage metrics. (08 Marks)
 - b. Write a program of the commission problem, the statement of the problem : A rifle salesperson in the former Arizona Territory sold rifle locks, stocks and barrels made by a gunsmith in Missouri. Locks cost \$45, stocks cost \$30 and barrels cost \$25. The salesperson had to sell atleast one complete rifle per month and production limits were such that at the most the sales person could sell in a month was 70 locks, 80 stocks and 90 barrels. At the end of a month, the salesperson sent a very short telegram showing – 1 locks sold. The gunsmith then knew the sales for the month were complete and computed the salesperson's commission as follows : 10% on sales up to \$1000, 15% on the next \$800 and 20% on any sales in excess of \$1800. The commission program produced a monthly sales report that gave the total number of locks, stocks and barrels sold, the salesperson's total dollar sales, and finally, the commission. Construct the program graph and define /use nodes for variables in the above problem. (12 Marks)

- 4
 - a. With a neat diagram, explain the traditional view of testing levels of waterfall-life cycle and rapid prototyping life cycles. (10 Marks)
 - b. With an example, explain the top-down integration and Bottom-up integration. (06 Marks)
 - c. Explain the decomposition based integration with an example. (04 Marks)

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PART – B

- 5 a. Explain the basis concepts for requirements specifications. (08 Marks)
b. With a neat diagram, explain the transition probabilities for the SATM system. (08 Marks)
c. Write a note on client/server testing. (04 Marks)
- 6 a. With a neat diagram, explain the validation and verification activities check work product against actual user requirements. (10 Marks)
b. Explain the following:
i) Redundancy (04 Marks)
ii) Partition. (06 Marks)
c. Explain the dependability properties. (06 Marks)
- 7 a. Explain the fault-based adequacy criteria. (08 Marks)
b. Describe the test oracles with a neat diagram. (08 Marks)
c. What is scaffolding? Explain. (04 Marks)
- 8 Write short notes on :
a. Quality process
b. Risk management
c. Organizing documents
d. Test and analysis reports. (20 Marks)

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Sixth Semester B.E. Degree Examination, June / July 2014

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. Explain the six phases of OR study. (10 Marks)
- b. A firm manufactures two types of products A & B and sells them at a profit of Rs.2 on type A and Rs.3 on type B. Each product is processed on two machines G and H. Type A requires one minute of processing time on G and two minutes on H. Type B requires one minute on G and one minute on H. The machine G is available for not more than 6 hours 40 minutes while H is available for 10 hours during any working day. How many items of type A and type B should be produced so that the total profit is maximum?
- i) Use mathematical formulation to the LPP.
- ii) Use graphical method to solve the problem. (10 Marks)
- 2 a. Discuss the various aspects of the concept tie breaking in simplex method. (10 Marks)
- b. Solve the following LPP by simplex method.
- Maximize $z = 5x_1 + 3x_2$
- Subjected to $3x_1 + 5x_2 \leq 15$
- $5x_1 + 2x_2 \leq 10$
- $x_1, x_2 \geq 0$ (10 Marks)
- 3 a. Solve the following LPP using two phase method:
- Minimize $z = 4x_1 + x_2$
- Subjected to $3x_1 + x_2 = 3$
- $4x_1 + 3x_2 \geq 6$
- $x_1 + 2x_2 \leq 4$
- $x_1, x_2 \geq 0$ (10 Marks)
- b. Solve the following LPP by Big-M method:
- Minimize $z = +2x_1 + x_2$
- Subjected to the constraints
- $x_1 + 2x_2 \leq 4$
- $4x_1 + 3x_2 \geq 6$
- $3x_1 + x_2 = 3$
- $x_1, x_2 \geq 0$ (10 Marks)
- 4 a. Use Revised simplex method to solve LPP,
- Maximize $z = x_1 + 2x_2$
- Subject to $x_1 + x_2 \leq 3$
- $x_1 + 2x_2 \leq 5$
- $3x_1 + x_2 \leq 6,$
- $x_1, x_2 \geq 0$ (12 Marks)

- 4 b. Explain the following:
 i) The essence of duality theory.
 ii) Primal dual relationship. (08 Marks)

PART – B

- 5 a. Use dual simplex method to solve LPP,
 Minimize $z = 2x_1 + x_2$
 Subjected to the constraints
 $3x_1 + x_2 \geq 3$
 $4x_1 + 3x_2 \geq 6$
 $x_1 + 2x_2 \leq 3$
 $x_1, x_2 \geq 0$ (10 Marks)
- b. Briefly discuss about sensitivity analysis. (10 Marks)
- 6 a. Explain various steps involved in Hungarian algorithm with an example. (10 Marks)
 b. A product is produced by 4 factories F_1, F_2, F_3 and F_4 . Their unit production costs are Rs 2, 3, 1 and 5 respectively. Production capacity of the factories are 50, 70, 30 and 50 units respectively. The product is supplied to 4 stores S_1, S_2, S_3 and S_4 . The requirements of which are 25, 35, 105 and 20 respectively. Unit costs of transportation are given below.

Stores \ Factories	S_1	S_2	S_3	S_4
F_1	2	4	6	11
F_2	10	8	7	5
F_3	13	3	9	12
F_4	4	6	8	3

Find the transportation plan such that the total production and transportation cost is minimum. (10 Marks)

- 7 a. Two players A and B are playing a game of tossing a coin simultaneously: Player A wins 1 unit of value when there are two heads, wins nothing when there are two tails and loses $\frac{1}{2}$ unit of value when there is one head and one tail. Determine the pay off matrix, the best strategies for each player and the value of the game. (10 Marks)
- b. 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) Two person-zero-sum-game (10 Marks)
- 8 Explain briefly the following:
 a. Tabu search algorithm.
 b. Genetic algorithm.
 c. Metaheuristics.
 d. Simulated annealing algorithm. (20 Marks)

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Sixth Semester B.E. Degree Examination, June/July 2014
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. Draw diagram for language processing system. (04 Marks)
 - b. Explain general structure of a compiler. (08 Marks)
 - c. Write an algorithm for “look ahead code with sentinels”. (04 Marks)
 - d. Draw a transition diagram for identifiers and keywords. How do you handle reserve words that look like identifiers? (04 Marks)

- 2
 - a. For the following grammar

$$S \rightarrow (L) \mid a$$

$$L \rightarrow L, S \mid S$$
 Make necessary changes to make it suitable for LL(1) parser. (02 Marks)
 - b. After doing necessary changes in Q2(a) grammar check whether it is LL(1) grammar or not. If yes, parse the string (a, a). (10 Marks)
 - c. List all error recovery methods in LL(1) parser. Explain one method suitable for the grammar given below.

$$S \rightarrow AbS \mid c \mid \epsilon$$

$$A \rightarrow a \mid cAd$$
 string is “ceadb” (08 Marks)

- 3
 - a. What is a shift reduce parser? Explain the conflict that may occur during shift reduce parsing. (04 Marks)
 - b. What is handle pruning? Explain with the help of the grammar $S \rightarrow SS + \mid SS^* \mid a$ and input string aaa^*a++ . (08 Marks)
 - c. Give Bottom-up parsing for the strings 000111 and grammar $S \rightarrow OS1 \mid 01$ and construct parse tree in each step of deviation. (08 Marks)

- 4
 - a. Write algorithm for construction of canonical LR(1) parsing table. (10 Marks)
 - b. Construct LALR parsing tables for the grammar shown below using LR(1) items.

$$S \rightarrow CC$$

$$C \rightarrow cC \mid d$$
 (10 Marks)

PART – B

- 5
 - a. Write a SDD for desktop calculator. (04 Marks)
 - b. Assume suitable SDD to construct a syntax tree for the expression $a - 4 + c$ and what are the steps involved in construction of that syntax tree. (08 Marks)
 - c. Construct annotated parse tree for $3*5$ and write dependency graph for the constructed parse tree. (08 Marks)

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- 6 a. List various 3 address instruction forms. Give one example for each. (10 Marks)
b. Construct DAG for the expression
 $(x + y) - ((x + y) * (x - y)) + ((x + y) * (x - y))$ (06 Marks)
c. Write case 3 address code instructions used to translate a switch statement. (04 Marks)
- 7 a. Discuss about the various components and their use in an activation record. (08 Marks)
b. What do you mean by calling sequence? Explain the actions performed during
(i) function call (ii) return. (08 Marks)
c. Draw subdivision of run-time memory into code and data areas. (04 Marks)
- 8 a. For the following program segment generate intermediate code and flowgraph of that code.
for i from 1 to 10 do
 for j from 1 to 10 do
 a[i, j] = 0.0 ;
 for i from 1 to 10 do
 a[i, i] = 1.0 ; (10 Marks)
b. What are the steps involved in optimization of Basic blocks. Explain any 2 steps. (10 Marks)
