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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)

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10CS62

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)

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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) $stmt_sequence \rightarrow stmt \ stmt_sequence'$
 $stmt_sequence' \rightarrow ; stmt_sequence/\epsilon$
 $stmt \rightarrow s$
 - ii) $S \rightarrow ,GH;$
 $G \rightarrow aF$
 $F \rightarrow bF/\epsilon$
 $H \rightarrow KL$
 $K \rightarrow m/\epsilon$
 $L \rightarrow n/\epsilon$ (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:

$$S \rightarrow AaAb/BbBa$$

$$A \rightarrow \epsilon$$

$$B \rightarrow \epsilon$$
 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 $\text{int}[3][3]$, write syntax directed translation with semantic rules. (08 Marks)
- 6 a. Enlist any four common three address instruction forms. (04 Marks)
- b. Define quadruples, 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)

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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)

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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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10CS65

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 devices. 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)

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10IS63

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

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 file structures? What is the driving force behind the file structure design? (04 Marks)
- b. Explain the functions READ and WRITE with parameters. (06 Marks)
- c. What are the three distinct operations that contribute to the total cost of access on disk? (04 Marks)
- d. Briefly explain the organization of data on Nine-Track tapes with a neat diagram. (06 Marks)
- 2 a. What are the different ways of adding structures to a file to maintain the identity of fields? Explain with example. (08 Marks)
- b. Explain the concept of inheritance using the I/O buffer class hierarchy. (06 Marks)
- c. What is RRN? Explain how does it support direct access with example. (06 Marks)
- 3 a. Briefly explain with example how spaces can be reclaimed dynamically in fixed length records. (08 Marks)
- b. What are the limitations of key sort method? (03 Marks)
- c. What are inverted lists? How does it improve the secondary index structure? (09 Marks)
- 4 a. Explain the object-oriented model for implementing co-sequential process. (10 Marks)
- b. With example, explain K-way Merge and selection tree for merging large number of lists. (10 Marks)

PART – B

- 5 a. In detail, discuss paged binary tree. What are its advantage and disadvantage? (10 Marks)
- b. What is B-tree? With example explain the following operations in B-tree:
i) Deletion; ii) Merging; iii) Redistribution. (10 Marks)
- 6 a. What is indexed sequential access? Explain the block splitting and merging due to insertion and deletion in sequence set with example. (10 Marks)
- b. Explain simple prefix B⁺ trees and its maintenance, with diagram. (10 Marks)
- 7 a. What is hashing? Explain the simple hashing algorithm with example. (10 Marks)
- b. Explain any two different collision resolution techniques. (10 Marks)
- 8 a. Briefly discuss the working of extendible hashing. (10 Marks)
- b. Write short notes on: i) Dynamic hashing; ii) Storage fragmentation. (10 Marks)

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10IS65

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

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Explain error and fault taxonomies. (05 Marks)
b. Explain in detail various levels of software testing with embedded device like STAM (Simple Automatic Teller Machine) as an example. (15 Marks)
- 2 a. Explain : i) Boundary value testing ii) Equivalence class testing iii) Decision table based testing. (10 Marks)
b. Explain in detail, Worst-case testing, with an example. (10 Marks)
- 3 a. Explain test coverage metrics and Basis path testing, with an example. (10 Marks)
b. Explain slice-based testing guide lines and observation in detail. (10 Marks)
- 4 a. Explain traditional view of testing levels, alternative life-cycle models. (10 Marks)
b. Explain in detail, path-based, call graph based and path based interpretation, with an example. (10 Marks)

PART – B

- 5 a. Explain and discuss: Thread and Finding thread, Testing threads are important in software testing. (10 Marks)
b. Explain Taxonomy of interactions, interaction, composition and determinism. (10 Marks)
- 6 a. Explain in detail, validation and verification and their differences. (10 Marks)
b. Explain : i) Degrees of freedom ii) Sensitivity iii) Redundancy iv) Restriction v) Partition and explain in detail any of them. (10 Marks)
- 7 a. Explain overview of assumptions in fault-based testing. (04 Marks)
b. Explain in detail, Mutation analysis and variations on mutation testing. (10 Marks)
c. Explain the terms: oracle, scaffolding, self checks on oracles in software testing. (06 Marks)
- 8 a. Write a short note on: i) Quality ii) Process iii) Test and analysis iv) Risk planning v) Monitoring the process vi) Improving the process. (12 Marks)
b. Explain the features of test design specifications documents. (03 Marks)
c. What are processed quality and analysis strategies in a brief note? (05 Marks)

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

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

$$\text{Maximize } Z = -2x_1 - x_2$$

Subject to the constraints

$$3x_1 + x_2 = 3,$$

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

$$x_1 + 2x_2 \leq 4$$

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

(10 Marks)

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

$$\text{Maximize } Z = 2x_1 + x_2$$

Subject to the constraints

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

$$6x_1 + x_2 \leq 3$$

$$\text{And } x_1, x_2 \geq 0$$

(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

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

$$x_1 + 3x_2 + x_3 \leq 6$$

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

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:

$$\text{Minimize } Z = 2x_1 + 2x_2 + 4x_3$$

Subject to the constraints

$$2x_1 + 3x_2 + 5x_3 \geq 2,$$

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

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

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

(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
Plants	X	2	3	11	7
	Y	1	0	6	1
	Z	5	8	15	9

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
Jobs	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

(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
Player A	A ₁	3	2	4	0
	A ₂	3	4	2	4
	A ₃	4	2	4	0
	A ₄	0	4	0	8

(06 Marks)

c. Solve the following game by graphical method:

		Player B			
		B ₁	B ₂	B ₃	B ₄
Player A	A ₁	8	5	-7	9
	A ₂	-6	6	4	-2

(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)

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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, with a neat diagram, the phases of a compiler. (10 Marks)
- b. Construct the transition diagram to recognize the tokens given below:
 - i) Identifier
 - ii) Relational operator
 - iii) Unsigned number
 (10 Marks)
- 2 a. What is left-recursion? Eliminate left recursion from the following grammar:

$$E \rightarrow E + T/T$$

$$T \rightarrow T * F/F$$

$$F \rightarrow (E)/id$$
 (08 Marks)
- b. Given the grammar:

$$S \rightarrow (L)/Q$$

$$L \rightarrow L, S/S$$
 - 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)).
 (12 Marks)
- 3 a. What is shift reduce parser? Explain the conflicts that may occur during shift reduce parsing. (04 Marks)
- b. Given the grammar:

$$A \rightarrow (A)/a$$
 - i) Find LR (0) items
 - ii) Construct SLR parsing table.
 - iii) Write SLR parsing algorithm.
 - iv) Show the parsing of input string ((a)).
 (16 Marks)
- 4 a. Given the following grammar:

$$S \rightarrow CC$$

$$C \rightarrow cC/d$$
 - i) Construct sets of LR (1) items.
 - ii) Construct canonical LR (1) parsing table.
 (12 Marks)
- b. Construct LALR parsing tables for the grammar shown in Q.No.4(a) using LR (1) items. (08 Marks)

PART – B

- 5 a. Explain the concept of syntax directed translation, with examples. (06 Marks)
- b. Define inherited and synthesized attributes. (04 Marks)
- c. Give SDD of a simple desk calculator. (04 Marks)
- d. Write the annotated parse tree for $3*5 + 4n$. (06 Marks)

- 6 a. Draw the DAG for the arithmetic expression, $a + a * (b - c) + (b - c) * d$. Show the steps for constructing the DAG. (10 Marks)
- b. Translate the arithmetic expression $a + -(b + c)$ into quadruples, triples and indirect triples. (06 Marks)
- c. Write the tree address code for switch statement. (04 Marks)
- 7 a. What is an activation record? Explain the purpose of each item in the activation record, with an example. (08 Marks)
- b. What is meant by calling sequence and return sequence? List calling sequence design principles. (08 Marks)
- c. Write a note on Garbage collection. (04 Marks)
- 8 a. List and explain design issues of a code generator. (10 Marks)
- b. With an example, explain common sub-expression and dead code elimination methods. (10 Marks)

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