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10AL61

Sixth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
Management and Entrepreneurship

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Define the term management. Explain the process of management in detail. **(10 Marks)**
b. Describe the contributions of F.W. Taylor for scientific management process. **(10 Marks)**

2 a. Explain the reasons which make planning process, an important activity in management. Write the hierarchy of organizational plans. **(10 Marks)**
b. Describe the steps that are generally followed in the planning process. **(10 Marks)**

3 a. Describe the departmentalisation based on functions with its merits and demerits. **(06 Marks)**
b. Explain the advantages of delegation of authority. **(06 Marks)**
c. Explain the various sources of recruitment. **(08 Marks)**

4 a. Describe the Maslow's need – hierarchy theory of motivation. **(08 Marks)**
b. Explain any three techniques of co-ordination. **(06 Marks)**
c. Describe any three essential factors of effective control system. **(06 Marks)**

PART – B

5 a. Explain the classification of entrepreneurs based on functional characteristics and types of entrepreneural business. **(10 Marks)**
b. Describe any five specific management problems faced by entrepreneurs. **(10 Marks)**

6 a. State the characteristics of SSI's. **(06 Marks)**
b. Describe the objectives of setting up SSI's in India. **(06 Marks)**
c. Briefly explain the steps required for establishing an SSI. **(08 Marks)**

7 a. Describe the principal services offered by NSIC for the promotion of small scale industries in India. **(10 Marks)**
b. Explain the various focused consultancy areas of TECSOK. **(10 Marks)**

8 a. Describe the several stages followed in project formulation. **(10 Marks)**
b. Explain the features, that the project report should include. **(05 Marks)**
c. State the advantages and limitations of CPM for network analysis. **(05 Marks)**

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10CS62

Sixth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
UNIX System Programming

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. What are POSIX standards? Explain different subsets of POSIX standards. Write a C or C++ program to check and display _POSIX _VERSION. **(06 Marks)**

b. Write a C OR C++ program to check the following compile time limits, along with its minimum value. i) supplemental groups, ii) maximum number of links of a file, iii) number of simultaneous asynchronous I/O, iv) real time signals, v) maximum number of child processes. **(08 Marks)**

c. List common set of APIs in UNIX system. Discuss the common characteristics of APIs along with their error status codes. **(06 Marks)**

2 a. Mention the different file types available in UNIX/ POSIX systems. **(08 Marks)**

b. List out the common files of UNIX systems with their usage and general file attributes. **(08 Marks)**

c. Differentiate between file stream pointer and file descriptor. **(04 Marks)**

3 a. Write the prototype and structure of APIs mentioned. Write a simple program for using these APIs. i) utime ii) link. **(12 Marks)**

b. Describe the device file APIs along with a sample program. **(08 Marks)**

4 a. Outline the environment structure of a process and mention any FOUR environment variables. **(06 Marks)**

b. Give reasons as to why shared libraries are better, with an example. **(06 Marks)**

c. Mention at least SIX resource limits and briefly explain the limits that they put on a process. **(08 Marks)**

PART – B

5 a. Explain various exec functions along with its prototypes and diagram that shows the relationships among them. **(10 Marks)**

b. Explain the "system" function with its prototype. **(04 Marks)**

c. Explain network login, with suitable diagram. **(06 Marks)**

6 a. Explain error handling for a Daemon process with a neat block diagram. Write the system library functions associated with error logging. **(08 Marks)**

b. Write the timeline or program sequence of execution for sigsetjmp and siglongjmp handling. **(08 Marks)**

c. Write the prototype of ALARM and PAUSE function and explain how they operate. **(04 Marks)**

7 a. Write the neat diagrammatic representation of a message queue with proper labeling. Write the data structure associated with message queue along with its elements detail. **(08 Marks)**

b. Write the prototypes of system library calls available to manipulate shared memory and semaphores. **(07 Marks)**

c. Write a simple C program to illustrate the concept of a co-process. **(05 Marks)**

8 a. Explain with a neat diagram, how STREAM PIPES can be used to implement client server model. **(10 Marks)**

b. Explain POPEN and PCLOSE functions with prototypes and demonstrate its usage with a simple C program. **(10 Marks)**

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10CS63

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
Compiler Design

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain with neat diagram, the phases of compiler with example. **(10 Marks)**

b. Construct a transition diagram for recognizing relational operators. Sketch the program segment to implement it, showing the first state and one final state. **(10 Marks)**

2 a. Briefly explain the problems associated with top down parser. **(03 Marks)**

b. Show that following grammar is ambiguous: $S \rightarrow S + S \mid S * S \mid id$. Give an unambiguous grammar for the above grammar such that '+' has highest priority and * has less priority and both are left associative. **(07 Marks)**

c. Given the grammar $A \rightarrow (A) / a$

i) Construct predictive parser table.

ii) Check the grammar is LL(1) or not.

iii) Show the parser steps for the input ((a)). **(10 Marks)**

3 a. Obtain LR(0) items for the following grammar:

$S \rightarrow L = R \mid R \quad L \rightarrow * R \mid id \quad R \rightarrow L$. **(08 Marks)**

b. Obtain FIRST and FALLOW sets for the grammar shown in Q.3(a) and obtain SLR parsing table. Is the grammar SLR? **(12 Marks)**

4 a. Given the grammar:

$A \rightarrow CC \qquad C \rightarrow aC \mid b$

i) Construct sets of LR(1) items.

ii) Construct canonical LR(1) parsing table. **(12 Marks)**

b. Write a note on the parse generator – YACC. **(03 Marks)**

c. Write the YACC specification of a simple desk calculator with following grammar for arithmetic expression:

$E \rightarrow E + T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid digit$ where digit between 0 to 9. **(05 Marks)**

PART – B

5 a. Explain type of attributes for non terminal with example. **(04 Marks)**

b. Write annotated parse tree for expression 5 + 4 * 3n where grammar is

$L \rightarrow En$

$E \rightarrow E + T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid digit$ **(06 Marks)**

c. How different classes of SDD's that guarantee evaluation order? **(06 Marks)**

d. Obtain postfix SDT for simple desk calculator. **(04 Marks)**

6 a. Obtain the directed acyclic graph for the expression $x + x * (y + z) + (y + z) * w$. **(06 Marks)**

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

c. Explain SDT of switch statement. **(08 Marks)**

7 a. What is activation record? Explain structure and purpose of each field in the activation record. **(06 Marks)**

b. Explain tasks of caller and callee when procedure called and exit. **(08 Marks)**

c. Explain briefly the performance metrics to be considered while designing garbage collector. **(06 Marks)**

8 a. Write intermediate code for the following source 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;
```

and identify basic blocks. **(10 Marks)**

b. Discuss the issues in the design of a code generator. **(10 Marks)**

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10CS64

Sixth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
Computer Networks – II

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Differentiate between virtual circuit and datagram. **(06 Marks)**

b. Find shortest path tree from node 5 to all nodes and also find the associated routing table entries for node 5 using Dijkstra's algorithm. **(08 Marks)**

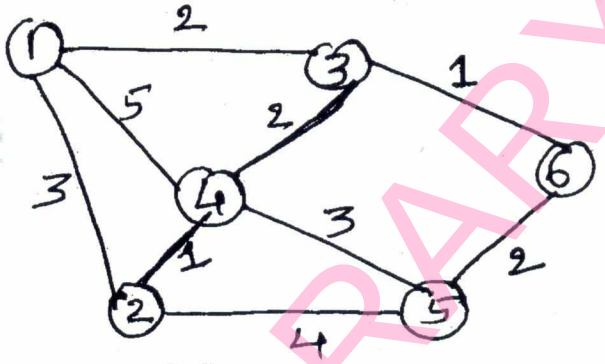

Fig. Q1(b)

c. Suppose we wish to transmit a large message ($L = 10^6$) over three hops. Now suppose that transmission line in each hop has an error rate of $P = 10^{-6}$ and each hop does error checking and retransmission :
   i) How many bits need to be transmitted using message switching?
   ii) Now suppose the same above message is broken up into ten 10^5 bit packets, how many bits need to be transmitted over the three hops? **(06 Marks)**

2 a. Explain Fair queuing mechanism of traffic management at packet level and also compute the expression for finish time in packet by packet fair queuing. **(07 Marks)**

b. Explain the leaky bucket algorithm used for policing. **(06 Marks)**

c. Suppose that ATM cells arrive at a leaky bucket policer at times t = 1, 2, 3, 5, 6, 8 11, 12, 13, 15 and 19. Assume I = 4 and L = 4. Plot the bucket content and identify any nonconforming cells. **(07 Marks)**

3 a. Explain the IP address classification. Identify the following IP address to which class they belong to : i) 200·58·20·165 ii) 128·167·23·20
iii) 16·196·128·50 iv) 150·156·10·10. **(07 Marks)**

b. A host in an organization has an IP address 150·32·64·34 and subnet mask 255·255·254·0. What is the address of this subnet? What is the range of IP address that a host can have on this subnet? **(07 Marks)**

c. Write a note on user datagram protocol(UDP). **(06 Marks)**

4 a. Provide a structure of OSPF common header and write a note on OSPF operation. **(08 Marks)**

b. Write a note on internet group management protocol. **(06 Marks)**

c. What do you mean by mobile IP? Explain mobile IP routing operation. **(06 Marks)**

PART – B

5 a. What do you mean by remote login and also explain secure shell(SSH) protocol. **(06 Marks)**

b. What are the elements of network security? Explain the threats to network security. **(06 Marks)**

c. Explain RSA algorithm. Using RSA algorithm encrypt a message m = 9. Assume a = 3 and b = 11. Find public and private keys and also show the ciphertext. **(08 Marks)**

6 a. What do you mean by VPN? Explain its types. **(07 Marks)**

b. Write a note on MPLS operation. **(07 Marks)**

c. Write a note on overlay networks. **(06 Marks)**

7 a. Write a note on overview of information process and compression in multimedia networks. **(04 Marks)**

b. Briefly explain various compression methods without loss. **(12 Marks)**

c. Explain voice over IP system. **(04 Marks)**

8 a. Briefly explain the classification routing protocols in wireless Ad-hoC networks. **(06 Marks)**

b. List the security issues in Ad – hoC networks. Explain types of attacks. **(07 Marks)**

c. Differentiate between inter cluster and intra cluster routing protocols in WSN. **(07 Marks)**

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10CS65

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
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 a neat diagram, explain the graphics pipeline architecture. **(10 Marks)**

b. What are the openGL API's for handling polygon types, color attributes, viewing and aspect ratio? **(06 Marks)**

c. Briefly explain any two applications of computer graphics. **(04 Marks)**

2 a. What are the graphics functions which give good API support? Briefly explain each of them with example. **(10 Marks)**

b. What are the different approaches of color in open GL? Explain with example. **(10 Marks)**

3 a. List the various features that a good inter active programs should include. Describe an open GL animating inter active program for the rotating square. **(10 Marks)**

b. Explain how an event driven input can be performed for window and keyboard events. **(10 Marks)**

4 a. Briefly explain the order in which frames occurs in open GL pipeline. **(08 Marks)**

b. With respect to modeling of color cube discuss:
i) Vertex array.
ii) Bilinear interpolation.
iii) Data structure for object representation. **(12 Marks)**

PART – B

5 a. What are Affine tranformation? Explain the basic transformation with respect to homogenous co-ordinate system in 3D. **(10 Marks)**

b. What are Quaternion? With an example, explain how Quaternion are used in rotation in a 3D space. Give the mathematical representation of Quaternion. **(10 Marks)**

6 a. What are simple projections? Obtain prespective and orthogonal 4×4 matrix representation. **(10 Marks)**

b. Briefly explain different types of viewing with neat sketches. **(10 Marks)**

7 a. Explain the Phong lighting model. **(10 Marks)**

b. Give the different classification of light material interactions. How are these supported in open GL? **(10 Marks)**

8 a. Explain the Cohen Sutherland line clipping algorithm and perform the clipping for line segment AB = [(−13,5)(17,11)], CD[(-2,3)(1,2)] against the window having lower left corner (-8,-4) and upper right corner at (12,8). **(10 Marks)**

b. Explain the scan line polygon filling algorithm. **(10 Marks)**

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10IS63

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
File Structures

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Implement unix command grep. Display output of your program on standard output. **(06 Marks)**

b. Suppose that we want to store a file of one million records of 100 bytes each. Records are not allowed to span sectors. Storage disk specification is as given below.
Sector/track = 86, bytes per sector = 512
Tracks/surface = 16, disk has 6 platters and both surfaces of each platter are used for storage.
Find:
i) Memory required to store one million records.
ii) Surface and track capacities.
iii) Disk capacity.
iv) Memory wasted due to fragmentation. **(08 Marks)**

c. What is file seeking? Explain seeking streams in C and C++. **(06 Marks)**

2 a. What is record packing and unpacking? Explain with an example for each, the most common methods of adding structures to a file to maintain the identity of record. **(10 Marks)**

b. When sequential search is good? What are the facilities available in UNIX for sequential processing of file? **(06 Marks)**

c. Write pack( ) and unpack( ) methods in C++ for student-USN, student-Name, student-branch, student-sem, student-email-id, student-contact-no fields for variable length records. **(04 Marks)**

3 a. Define the term index with an example. Explain the operation required to maintain an index file. **(07 Marks)**

b. How indexing is done that is too large to hold in the memory? **(08 Marks)**

c. Explain the method of reclaiming space for fixed-length record files. **(05 Marks)**

4 a. Explain the model for implementing the cosequential processing and its applications to general ledger program. **(12 Marks)**

b. Explain with an example, the K-way merge algorithm. **(08 Marks)**

PART – B

5 a. Define the term order of a B-tree. How the order of a B-tree is related to the number of levels of a B-tree (growth of a B-tree) and number of disk requests to process elements of a B-tree? **(08 Marks)**

b. Show the B-trees of order six that result from loading the following sets of keys in order:
i) C S D T A M P I B W N G U R
ii) C G J X N S U O A E B H I F. **(06 Marks)**

c. Explain the determination of the worst case search depth of a B-tree. **(06 Marks)**

6 a. Give the internal structure of index set blocks. What is the role of each field of index set block? Give an example. **(07 Marks)**

b. What are the differences between B-trees, B^+-trees and B* trees. **(06 Marks)**

c. Explain the issues involved in maintenance of B+ trees. **(07 Marks)**

7 a. Match the following:

i)	Hashing	a)	Synonym
ii)	Collision	b)	Tombstone
iii)	Collision resolution	c)	Index
iv)	Deletion of record	d)	Buckets
v)	Buddy buckets	e)	Deletion/shrinking of address space
vi)	Directory	f)	Extendible hashing

(06 Marks)

b. What is collision? Explain the process of collision resolution by progressive overflow technique. **(08 Marks)**

c. Suppose the1000 addresses are allocated to hold 500 records in a randomly hashed file, and that each address can hold one record. Find:

i) Packing density for the file.

ii) How many addresses should have no records assigned to them?

iii) How many addresses should have exactly one record assigned?

iv) Assuming that only one record can be assigned to each home address, how many overflow records could be expected?

v) What percentage of records should be overflow records? **(06 Marks)**

8 Write short notes on:

a. Extendible hashing

b. Dynamic hashing

c. K-way merge

d. Strength and weakness of CD-Rom. **(20 Marks)**

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10IS65

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
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, faults and failures in the process of programming and testing with a flow diagram. **(08 Marks)**

b. Explain the SATM (Simple Automatic Teller Machine) problem. **(08 Marks)**

c. What are the differences between structural and functional testing? **(04 Marks)**

2 a. Explain with an example the process of boundary value analysis. **(08 Marks)**

b. Explain decision table and its technique to solve triangle problem. **(08 Marks)**

c. Write short note on equivalence class testing. **(04 Marks)**

3 a. Define Control Flow Graph (CFG) for x to the power of G and write algorithm, basic block and complete path. **(12 Marks)**

b. Define various data flow testing criteria. **(08 Marks)**

4 a. Explain SATM system in brief. Draw and explain context diagram and data flow diagram of SATM system. **(15 Marks)**

b. Explain the difference between Top Down integration and bottom up integration. **(05 Marks)**

PART – B

5 a. What is thread? Explain basic concepts used in requirement specification to identify threads to support tester process. **(08 Marks)**

b. What are difference between progression and regression testing? **(06 Marks)**

c. Explain taxonomy of interaction testing explain any one in brief. **(06 Marks)**

6 a. Define software quality. Explain different quality attributes of software. **(08 Marks)**

b. Discuss quality goals in software testing. **(04 Marks)**

c. Write short note on quality process. **(08 Marks)**

7 a. What is scaffolding? Describe generic and application specific scaffolding. **(08 Marks)**

b. Define the following terms:
i) Test case ii) Test case specification iii) Test obligation
iv) Test suite v) Test execution vi) Adequacy criteria. **(06 Marks)**

c. What is test oracle? What are its advantages over human oracle? **(06 Marks)**

8 a. Explain in brief clean room process model. **(05 Marks)**

b. Describe the dependability properties in detail. **(10 Marks)**

c. Write short note on walk through and inspection. **(05 Marks)**

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10CS/IS661

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
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? Briefly explain the various phases of operations research study. **(08 Marks)**

b. A person requires minimum 10, 12 and 12 units of chemicals for A, B and C respectively for his garden. A liquid product contains 5, 2 and 1 units of A, B and C respectively per jar. A dry product contains 1, 2 and 4 units of A, B and C per jar. If the liquid product sells for Rs.3 per jar and dry product sells for Rs.2 per jar, how many of each should be purchased in order to minimize the cost and meet requirement. **(06 Marks)**

c. Use graphical method to solve the following :

$$\text{Max } z = 100x_1 + 40x_2$$

Subjected to $5x_1 + 2x_2 \le 1000$

$3x_1 + 2x_2 \le 900$

$x_1 + 2x_2 \le 500$

$x_1, x_2 \ge 0$ **(06 Marks)**

2 a. Solve the following LPP by using simplex method:

$$\text{Max } z = 3x_1 + 2x_2 + 5x_3$$

Subjected to $x_1 + 2x_2 + x_3 \le 430$

$3x_1 + 2x_2 \le 460$

$x_1 + 4x_2 \le 420$

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

b. Explain the steps involved in setting up of a simplex method. **(10 Marks)**

3 a. Solve the following LPP by using Big M method:

$$\text{Max } z = -2x_1 - x_2$$

Subjected to $3x_1 + x_2 = 3$

$4x_1 + 3x_2 \ge 6$

$x_1 + 2x_2 \le 4$

$x_1, x_2 \ge 0$ **(10 Marks)**

b. Solve the following LPP by using two-phase method:

$$\text{Max } z = 5x_1 + 8x_2$$

Subjected to $3x_1 + 2x_2 \ge 3$

$x_1 + 4x_2 \ge 4$

$x_1 + x_2 \le 5$

$x_1, x_2 \ge 0$ **(10 Marks)**

4 a. Explain the steps involved in revised simplex method. **(10 Marks)**

b. Use revised simplex method to solve the following LPP:

Min $z = x_1 + x_2$

Subjected to $x_1 + 2x_2 \geq 7$

$4x_1 + x_2 \geq 6$

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

PART – B

5 a. Explain the role of duality theory in sensitivity analysis. **(10 Marks)**

b. Write the dual of the following LPP:

i) Max $z = 3x_1 - x_2 + x_3$

Subjected to $4x_1 - x_2 \leq 8$

$8x_1 + x_2 + 3x_3 \geq 12$

$5x_1 - 6x_3 \leq 13$

$x_1, x_2, x_3 \geq 0$

ii) Min $z = 2x_2 + 8x_3$

Subjected to $3x_1 + x_2 \geq 12$

$2x_1 + x_2 + 6x_3 \leq 6$

$5x_1 - x_2 + 3x_3 = 4$

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

6 a. Find the initial solution to the following transportation problem using VAM: **(10 Marks)**

		Destination				
		D_1	D_2	D_3	D_4	Supply
Factory	F_1	3	3	4	1	100
	F_2	4	2	4	2	125
	F_3	1	5	3	2	75
	Demand	120	80	75	25	300

b. Explain Hungarian algorithm with example. **(10 Marks)**

7 a. Define the following with respect to games:

i) Pay off ii) Strategy iii) Saddle point. **(03 Marks)**

b. Solve the following game by graphical method:

Player B

Player A $\begin{bmatrix} 3 & -3 & 4 \\ -1 & 1 & -3 \end{bmatrix}$ **(07 Marks)**

c. Solve the following game by dominance property:

Player B

Player A $\begin{bmatrix} 2 & -2 & 4 & 1 \\ 6 & 1 & 12 & 3 \\ -3 & 2 & 0 & 6 \\ 2 & -3 & 7 & 7 \end{bmatrix}$. **(10 Marks)**

8 Write short notes on:

a. Genetic algorithm.

b. Metaheuristics.

c. Tabu search algorithm.

d. Simulated annealing algorithm. **(20 Marks)**

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10IS662

Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015

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. Describe the various phases of a compiler. Write down the translation for an assignment statement like: position = initial + rate * 60. Indicate the outputs of each phase. **(12 Marks)**

b. Construct the transition diagrams for a set of keywords like begin, end, if, then and else, and identifiers and constants along with a minimum set of relational operators. **(08 Marks)**

2 a. How left recursion can be eliminated from grammars? Write down the simple arithmetic expression grammar and rewrite the grammar after removing left recursion. **(05 Marks)**

b. What is left factoring? Rewrite the following grammar after "left factored":

$S \rightarrow iEtS \mid iEtSeS \mid a$

$E \rightarrow b$ **(05 Marks)**

c. Broadly classify parsers. How top-down parsing and bottom-up parsing be subdivided? Briefly explain the merits of each. **(05 Marks)**

d. Briefly explain the implementation of a table driven predictive parser. **(05 Marks)**

3 a. Define LL(1) grammars. Test whether the following grammar is LL(1) or not, and construct a predictive parsing table for it.

$S \rightarrow AaAb \mid BbBa$

$A \rightarrow \in$

$B \rightarrow \in$ **(10 Marks)**

b. Construct the LR(0) item set for the grammar:

$E \rightarrow E + T / T$

$T \rightarrow T * F / F$

$F \rightarrow (E) \mid id$

Also draw the DFA for the et of LR(0) items found. **(10 Marks)**

4 a. Construct the canonical LR(1) items and the GOTO graph as well as the canonical LR(1) parsing table for the following augumented grammar:

$S' \rightarrow s$

$S \rightarrow CC$

$C \rightarrow cC \mid d$ **(16 Marks)**

b. For the table in question 4(a), construct the LALR parsing table. **(04 Marks)**

PART – B

5 a. Explain the concept of syntax-directed definitions. What is synthesized attributes and inherited attributes? **(06 Marks)**

b. Construct the syntax tree, parse tree, and the annotated parse tree for the input string say 5 * 6 + 7; using suitable context-free grammar. **(06 Marks)**

c. Construct a dependency graph for the declaration float id1, id2, id3. **(08 Marks)**

6 a. Draw the syntax tree and DAG for the expression (a * b) + (c – d) * (a * b) + b. **(08 Marks)**

b. Represent the following assignment namely a = b * – c + b * – c; in its syntax tree form, three-address code, quadruples and triples representation. **(12 Marks)**

7 a. Discuss the general structure of activation record. **(08 Marks)**

b. What is meant by calling sequence and return sequence? List the calling sequence design principles. **(08 Marks)**

c. Write a note on garbage collection. **(04 Marks)**

8 a. List and briefly explain the design issues of a code generator. **(10 Marks)**

b. With example explain common subexpression and dead code elimination methods. **(10 Marks)**

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