

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI - 574 225

Affiliated to VTU, Belgaum and Approved by A.I.C.T.E., New Delhi

COURSE BOOK

(ACD - 08, ACD - 09, ACD - 10, ACD - 12, ACD - 13)

Period of the Semester : From 01-08-2015 to 20-11-2015
(Odd / Even)

Semester : V A, CSE

Subject with Code : SYSTEM SOFTWARE 10CS52

TIME SLOT

Mon : <u>11-10AM-12.05 PM</u>	Tue : <u>12.05PM-00 PM</u>
Wed : <u>09.00AM-09.55 AM</u>	Thu : <u>11.10 AM - 12.05 PM</u>
Fri : <u>-</u>	Sat : <u>09.00 AM - 09.55 AM</u>

Name of the Teacher : MANGALA KINI B

Department : COMPUTER SCIENCE & ENGINEERING



Alva's Education Foundation, Moodbidri

Alva's Institute of Engineering and Technology

Shobhavana Campus, Mijar, Moodbidri-574225. Phone: 08258-262725

ACADEMIC CALENDAR 2015-16 (Odd Semester) BE, M. Tech & MBA

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AUG						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31						
	Number of working Days -25						

Aug 1 : Commencement of ODD Semester BE, MBA

Aug 3-8 : Departmental Technical Talk 1

Aug 15: Independence Day

Aug 17-22 : Departmental Technical Talk 2

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
SEP		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30				
	Number of working Days - 24						

Sep 1-5 : Departmental Technical Talk 3

Sep 5 : Display of Attendance (as on 05-09-2015)

Sep 07-09: Test -1 for BE, MBA

Sept 17 : Sri Varasiddhi Vinayaka Vrata

Sep 14-19 : Departmental Technical Talk 4

Sep 24: Bakrid

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
OCT				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	
	Number of working Days -23						

Oct 02 : Mahatma Gandhi Jayanthi

Oct 7 : Display of Attendance (as on 7-10-2015)

Oct 8-10 : Test -2 for BE, MBA

Oct 12: Mahalaya Amavasya

Oct 13-17 : Departmental Technical Talk 5

Oct 22 : Mahanavami -Ayudha Pooja

Oct 23 : Vijayadashami

Oct 24 : Moharam

Oct 26-31 : Departmental Technical Talk 6

Oct 27 : Maharishi Valmiki Jayanthi

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
NOV							1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30						
	Number of working Days -13						

Nov 10: Naraka Chaturdashi

Nov 11 : Display of Attendance (as on 11-11-2015)

Nov 12 : Deepavali

Nov 13-16 : Test -3 for BE, MBA

Nov 20 : Last working day of ODD semester BE, MBA

Nov 23 : Commencement of Pract- Examinations for BE

Nov 28 : Kanakadasa Jayanthi

Total Number of working Days till 20th Nov: 85

AIET		INDIVIDUAL FACULTY TIME TABLE					Faculty Name: Mangala Kini			
Dept: Computer Science & Engineering						Academic Year: 2015-16 (ODD Semester)				
	1	2		3	4	L U N C H	5	6	7	
	9.00 – 9.55	9.55-10.50		11.10-12.05	12.05-1.00		2.00-3.00	3.00-4.00	4.00-5.00	
Monday				SS-A						
Tuesday					SS-A		← SS OS Lab A2 + VKT →			
Wednesday	SS-A	← SS OS Lab A1 + CA →								
Thursday				SS-A			← EC LD LAB B2 + AS →			
Friday		← EC LD LAB B1 + AS →					← CPL D Sec RP + MK →			
Saturday	SS-A									
Other Special Activities: magazine committee .										
UNITS	Theory:10			Lab:15		Others:	Total Units:25			


 31.10.16
 Dept. Of Computer Science & Engineering
 Alva's Institute of Engg. & Technology
 Mijar, MOODBIDRI - 574 225

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MIJAR, MOODBIDRI

CLASS TIMETABLE

Format No. ACD06
Issue No. 01
Rev. No. 00

Department	Computer Science and Engg.	Semester	V	Section	A
Academic Year	2015-16	Room No.	102		
Class Coordinator	Mr. Hemanth Kumar N P				

Period → Day ↓ Time →	1	2	T E A	3	4	L U N C H	5	6	7
	9.00 – 9.55	9.55 – 10.50		11.10 – 12.05	12.05 – 1.00		2.00 – 3.00	3.00 – 4.00	4.00 – 5.00
Monday	CN-I	OS		SS	APT		DBMS	FLAT	OS
Tuesday	FLAT	SE		OS	SS		← DBA LAB A1/ SSOS LAB A2 → (HNP+VSS)/(MK+VKT)		
Wednesday	SS	← DBA LAB A2/ SSOS LAB A1 → (HNP+DM)/(MK+CA)			DBMS		CN-I	FLAT-TUT	
Thursday	SE	DBMS	B R E A K	SS	CN-I		FLAT	← Apple iOS Lab → (HK+SPD)	
Friday	APT	DBMS		SE	FLAT		DBMS	OS	CN-I
Saturday	SS	FLAT		OS	SE				

Allocation of Subjects

Theory:

Subject Code	Title	Subject Initial	Faculty Name	Faculty Code
10IS51	Software Engineering	SE	Ms. Deeksha M	DM
10CS52	Systems Software	SS	Ms. Mangala Kini	MK
10CS53	Operating Systems	OS	Mr. Chanchal Antony	CA
10CS54	Database Management Systems	DBMS	Mr. Hemanth Kumar N P	HNP
10CS55	Computer Networks - I	CN-I	Mr. Manjunath Raikar	MR
10CS56	Formal Languages and Automata Theory	FLAT	Ms. Vineetha Pais	VP

Practical:

Subject Code	Title	Faculty Name	Faculty Code
10CSL57	Database Applications Laboratory	Mr. Hemanth Kumar N P Ms. Deeksha M Mr. Vivek Sharma S	HNP DM VSS
10CSL58	System Software and Operating System Lab	Ms. Mangala Kini Mr. Chanchal Antony Mr. Venkatesh	MK CA VKT
	Apple iOS Lab	Mr. Harish Kunder Mr. Stanley Pradeep D'Souza	HK SPD
	Aptitude Class(APT)	Ms. Merlyn Melita Mathais	MM

HOOD. B
Dept. Of Computer Science & Engineering
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Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 674 225, D.K.

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MIJAR, MOODBIDRI

CLASS TIMETABLE

Format No. ACD06
Issue No. 01
Rev. No. 00

Department	Computer Science and Engg.	Semester	V	Section	B
Academic Year	2015-16	Room No.	103		
Class Coordinator					

Period → Day ↓ Time →	1	2	T E A	3	4	L U N C H	5	6	7	
	9.00 – 9.55	9.55 – 10.50			11.10 – 12.05		12.05 – 1.00	2.00 – 3.00	3.00 – 4.00	4.00 – 5.00
Monday	SE	DBMS	B R E A K	FLAT	SS		OS	APT	FLAT-TUT	
Tuesday	DBMS	SE		SS	CN-I		SS	← Apple iOS Lab → (PSK+SPD)		
Wednesday	SS	FLAT		OS	SE		DBMS	OS	CN-I	
Thursday	FLAT	← DBA LAB B1/ SSOS LAB B2 → (HGM+AS+PSK)/(VP+CA)					SE	DBMS	OS	
Friday	CN-I	SS			FLAT		DBMS	← DBA LAB B2/ SSOS LAB B1 → (HGM+SM)/(VP+VKT)		
Saturday	OS	CN-I		APT	FLAT					

Allocation of Subjects

Theory:

Subject Code	Title	Subject Initial	Faculty Name	Faculty Code
10IS51	Software Engineering	SE	Ms. Vidya	VD
10CS52	Systems Software	SS	Ms. Vineetha Pais	VP
10CS53	Operating Systems	OS	Mrs. Arundhathi Nelli	AN
10CS54	Database Management Systems	DBMS	Mr. Sayeesh	SS
10CS55	Computer Networks - I	CN-I	Mr. Vivek Sharma S	VSS
10CS56	Formal Languages and Automata Theory	FLAT	Mr. Harish Kunder	HK

Practical:

Subject Code	Title	Faculty Name	Faculty Code
10CSL57	Database Applications Laboratory	Mrs. Harshitha G M Mr. Sushant M Ms. Ankitha Shetty	HGM SM AS
10CSL58	System Software and Operating System Lab	Ms. Vineetha Pais Mr. Venkatesh Mr. Chanchal Antony	VP VKT CA
	Apple iOS Lab	Mr. Parikshith Nayaka S K Mr. Stanley Pradeep D'Souza	PSK SPD
	Aptitude Class(APT)	Ms. Merlyn Melita Mathais	MM

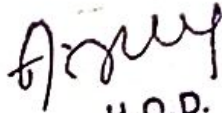
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Mijar, MOODBIDRI - 574 225

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Mijar, MOODBIDRI - 574 225, U.N.

CSE-V Sem -Section A

SL No.	USN	Name of the Students
1	4AL12CS009	Anoop Naik
2	4AL12CS010	Anusha Ajith
3	4AL12CS036	Gireesh Mon .P.M
4	4AL12CS048	Manisha K.P
5	4AL12CS062	Payal M.P Shetty
6	4AL12CS406	Arun Kumar G.M
7	4AL13CS001	Adarsh Ajith
8	4AL13CS002	Adhiel Hussain
9	4AL13CS003	Aishwarya K Shetty
10	4AL13CS004	Akash G
11	4AL13CS005	AKSHATHA BHAT
12	4AL13CS007	AMINA SAJIAHA
13	4AL13CS008	Aniketan Noel
14	4AL13CS009	Anjana Jose
15	4AL13CS010	ANUSHA
16	4AL13CS011	Anusha S Aradhya
17	4AL13CS012	Anusha V
18	4AL13CS013	Anvitha Shubhaveer Jain
19	4AL13CS015	ARPITA S BHAT
20	4AL13CS016	Arya K M
21	4AL13CS018	ASIF
22	4AL13CS019	B Asritha
23	4AL13CS020	Bhandary Shreyas Shankar
24	4AL13CS021	Bharath R
25	4AL13CS022	BINDU S
26	4AL13CS023	Bitty Grace George
27	4AL13CS024	Darshsana K
28	4AL13CS025	Deeksha Shetty B
29	4AL13CS026	Deeksha Shetty D
30	4AL13CS027	DEENA DEEPIKA CUTINHA
31	4AL13CS028	DEEPAK D K
32	4AL13CS029	Deepika B Shetty
33	4AL13CS030	Deviprasad S Shetty
34	4AL13CS031	DILEEP KUMAR
35	4AL13CS032	Drisya S Babu
36	4AL13CS034	Gaurav Suvarna
37	4AL13CS035	GOUTAMI PRAKASH HOSUR
38	4AL13CS036	Gowrava
39	4AL13CS037	GURURAJ HIPPARAGI
40	4AL13CS038	HASMITHA B V
41	4AL13CS039	Hellen Treesa John
42	4AL13CS040	Hitesh Harikrishnan
43	4AL13CS041	Impana M S
44	4AL13CS043	Jerin Jose
45	4AL13CS044	JISHA EMMANUEL
46	4AL13CS045	Jisna Jayaraj
47	4AL13CS047	KAVYA

48	4AL13CS048	KUSUMA J
49	4AL13CS049	LATHISHMA SUVARNA M
50	4AL13CS050	Lavanya R
51	4AL13CS051	M RAKSHA KUDVA
52	4AL13CS052	M SANGEETHA JAIN
53	4AL13CS053	MAHESHAKUMAR SHETTY
54	4AL13CS054	MANOJ E


 H.O.D.
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CSE-V Sem -Section B

V. Meetha

Sl. No.	USN	Name of the Students
1.	4AL13CS054	MANOJ E
2.	4AL13CS055	Meghana V
3.	4AL13CS056	NALINA L N
4.	4AL13CS057	NAVAMI R S
5.	4AL13CS058	Navyashree
6.	4AL13CS059	Niriksha M
7.	4AL13CS062	Pavan Kumar S
8.	4AL13CS063	PAVITHRA G
9.	4AL13CS064	Pooja
10.	4AL13CS065	Prajwal M Shetty
11.	4AL13CS066	PRARTHANA G M
12.	4AL13CS067	Pratheek P P
13.	4AL13CS068	R Toshitha
14.	4AL13CS069	RAJATHA MITHYANTHA
15.	4AL13CS070	RAKSHITHA K SHETTY
16.	4AL13CS071	RAKSHITHA SUVARNA B
17.	4AL13CS072	RANJITHA M
18.	4AL13CS073	RANJITHA NAIK K
19.	4AL13CS075	RENITA D SOUZA
20.	4AL13CS076	S J SHREYAS
21.	4AL13CS078	SAMRUDDHI N R
22.	4AL13CS079	SAMSON IMMANUEL K
23.	4AL13CS080	Sanjana Devadiga
24.	4AL13CS081	Senva Deeksha Diwakar
25.	4AL13CS083	SHASHIKANTH WAGLE
26.	4AL13CS084	SHEHAAB AHAMAD A
27.	4AL13CS085	Shetty Harshita Purushottam
28.	4AL13CS086	Shetty Kavya Divakar
29.	4AL13CS087	Shetty Nithesh Shridhar
30.	4AL13CS088	Shetty Shraddha Radhakrishna
31.	4AL13CS089	Shetty Shreyas Umesh
32.	4AL13CS091	Shetty Srajan Naveenchandra
33.	4AL13CS092	SHREELAKSHMI D T
34.	4AL13CS093	Shruthi Surendran
35.	4AL13CS094	Shweta B Kuriyavar
36.	4AL13CS096	Soniya George
37.	4AL13CS097	Soorya K
38.	4AL13CS098	SRIDEVI
39.	4AL13CS099	SRIDHAR T S
40.	4AL13CS100	Sruthin R
41.	4AL13CS103	SUKANYA
42.	4AL13CS104	SUMALATHA N
43.	4AL13CS105	SUMATHI S M
44.	4AL13CS106	Supritha KN
45.	4AL13CS107	Swetha T P
46.	4AL13CS108	Tibin K Tomy
47.	4AL13CS110	Vandana G
48.	4AL13CS116	Vimal K
49.	4AL13CS117	Rohit Rajan Babu
50.	4AL14CS400	Karthik C Shekar
51.	4AL14CS401	Naveen Shyadaguppi
52.	4AL14CS402	Rajesh C N
53.	4AL14CS404	Shetty Rohan Suresh

Photo CM

Sradha

Dept. of Computer Science & Engineering
 Aiva's Institute of Technology
 Mijar, MOODBIDRI - 574 225

SYSTEM SOFTWARE

Subject Code: 10CS52
Hours/Week : 04
Total Hours : 52

I.A. Marks : 25
Exam Hours: 03
Exam Marks: 100

PART - A

UNIT - 1

6 Hours

Machine Architecture: Introduction, System Software and Machine Architecture, Simplified Instructional Computer (SIC) - SIC Machine Architecture, SIC/XE Machine Architecture, SIC Programming Examples.

UNIT - 2

6 Hours

Assemblers -1: Basic Assembler Function - A Simple SIC Assembler, Assembler Algorithm and Data Structures, Machine Dependent Assembler Features - Instruction Formats & Addressing Modes, Program Relocation.

UNIT - 3

6 Hours

Assemblers -2: Machine Independent Assembler Features - Literals, Symbol-Definition Statements, Expression, Program Blocks, Control Sections and Programming Linking, Assembler Design Operations - One-Pass Assembler, Multi-Pass Assembler, Implementation Examples - MASM Assembler.

UNIT - 4

8 Hours

Loaders and Linkers: Basic Loader Functions - Design of an Absolute Loader, A Simple Bootstrap Loader, Machine-Dependent Loader Features - Relocation, Program Linking, Algorithm and Data Structures for a Linking Loader; Machine-Independent Loader Features - Automatic Library Search, Loader Options, Loader Design Options - Linkage Editor, Dynamic Linkage, Bootstrap Loaders, Implementation Examples - MS-DOS Linker.

PART - B

UNIT - 5

6 Hours

Editors and Debugging Systems: Text Editors - Overview of Editing Process, User Interface, Editor Structure, Interactive Debugging Systems - Debugging Functions and Capabilities, Relationship With Other Parts Of The System, User-Interface Criteria

UNIT - 6

8 Hours

Macro Processor: Basic Macro Processor Functions - Macro Definitions and Expansion, Macro Processor Algorithm and Data Structures, Machine-Independent Macro Processor Features - Concatenation of Macro Parameters, Generation of Unique Labels, Conditional Macro Expansion, Keyword Macro Parameters, Macro Processor Design Options - Recursive Macro Expansion, General-Purpose Macro Processors, Macro Processing Within Language Translators, Implementation Examples - MASM Macro Processor, ANSI C Macro Processor.

UNIT - 7

6 Hours

Lex and Yacc - 1: Lex and Yacc - The Simplest Lex Program, Recognizing Words With LEX, Symbol Tables, Grammars, Parser-Lexer Communication, The Parts of Speech Lexer, A YACC Parser, The Rules Section, Running LEX and YACC, LEX and Hand- Written Lexers, Using LEX - Regular Expression, Examples of Regular Expressions, A Word Counting Program, Parsing a Command Line.

UNIT - 8

6 Hours

Lex and Yacc - 2

Using YACC - Grammars, Recursive Rules, Shift/Reduce Parsing, What YACC Cannot Parse, A YACC Parser - The Definition Section, The Rules Section, Symbol Values and Actions, The LEXER, Compiling and Running a Simple Parser, Arithmetic Expressions and Ambiguity, Variables and Typed Tokens.

Text Books:

1. Leland.L.Beck: System Software, 3rd Edition, Addison-Wesley, 1997.
(Chapters 1.1 to 1.3, 2 (except 2.5.2 and 2.5.3), 3 (except 3.5.2 and 3.5.3), 4 (except 4.4.3))
2. John.R.Levine, Tony Mason and Doug Brown: Lex and Yacc, O'Reilly, SPD, 1998.
(Chapters 1, 2 (Page 2-42), 3 (Page 51-65))

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI

(A unit of Alva's Education Foundation)

Fifth Semester B.E. (CSE)

I. A Test Examinations-I

29th September – 2015

10CS52 – SYSTEM SOFTWARE

Duration: 1 ½ Hour

Max. Marks: 50

Note: 1) Answer **Two Full questions each Part.**

PART-A

1. a) Discuss the characters that are used in the meta language as part of standard ASCII character set used in UNIX operating system. 08
 b) Distinguish between Lexer and handwritten lexers 4.5
2. a) Give the LEX and YACC specifications to recognize a parenthesized arithmetic expression. 08
 b) Give the differences between LEX and YACC 4.5
3. a) Explain different conflicts in YACC with examples. 8.5
 b) Explain the following: 4
 - i) yyin()
 - ii) yyout()
 - iii) yyleng
 - iv) yylex()

PART-B

4. a) Define YACC. What a YACC cannot parse? 4
 b) Discuss about Start States 4
 c) Explain the format of YACC program 4.5
5. a) Write the Regular Expressions to identify the following 8
 - i) Identifier
 - ii) Decimal number
 - iii) -ve Integer
 - iv) +ve Fraction
- b) Explain Shift Reduce Parsing with Example. 4.5
6. a) Explain the LEX Specification with an example. 6.5
 b) Explain Lexer Parser communication 6

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI

(A unit of Alva's Education Foundation)

Fifth Semester B.E. (CSE)

I. A Test Examinations-I

SCEHEME OF EVALUATION

29th September - 2015

10CS52 - SYSTEM SOFTWARE

Note: 1) Answer any Two full questions in each part.

1.	a)	Discuss the characters that are used in the meta language as part of standard ASCII character set used in UNIX operating system.	08
	Ans	Explaining each of $\cdot, *, [, \wedge, \$, \{ \}, \backslash, +, ?, , \dots, /, ()$.	
1.	b)	Distinguish between lexer & handwritten lexers.	4 1/2
	A:	lexer written in C is suitable for simple command language that handles commands, numbers etc. The lex version is third the length of C lexer. C version of lexer takes three times than lex, As long to write and debug.	
2.	a)	Give the Lex and Yacc specifications to recognize a parenthesized arithmetic expression.	8
	A:	Lab Program 4a) consisting of lex and Yacc parts.	

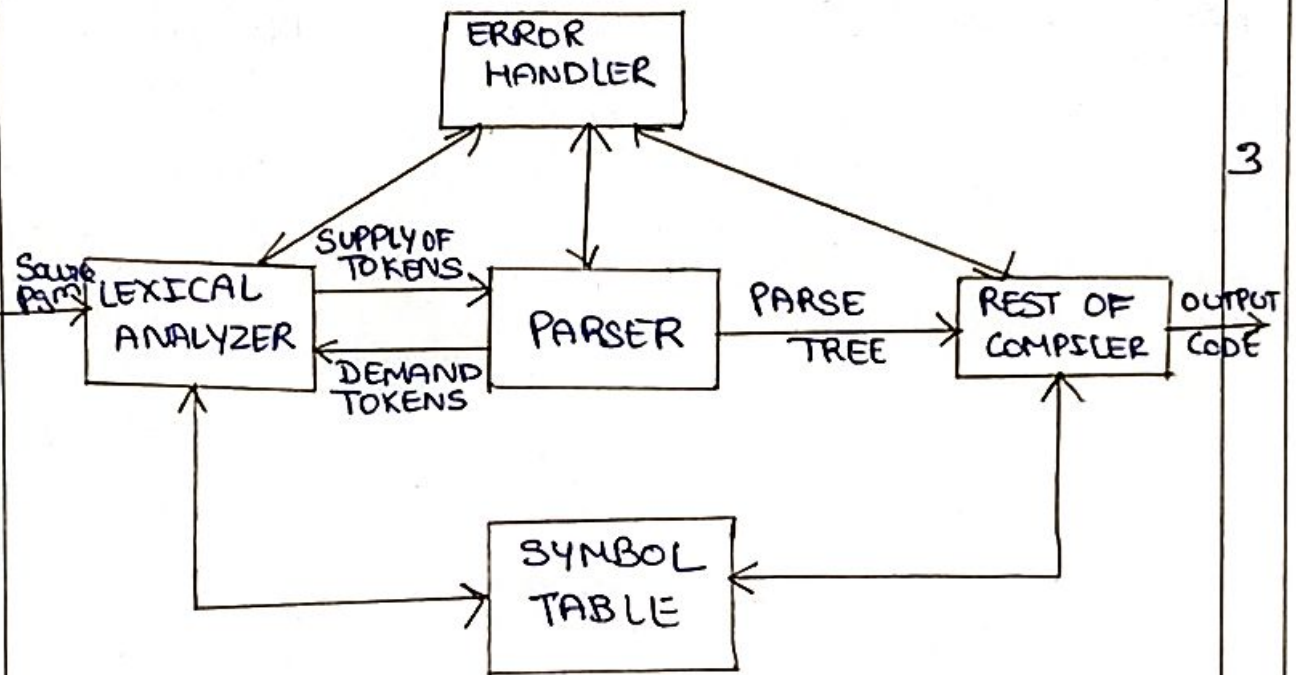
2.	b)	Give the difference between LEX and YACC									
	A:	<table border="1"> <thead> <tr> <th><u>Lex</u></th> <th><u>YACC</u></th> </tr> </thead> <tbody> <tr> <td>1. used for Lexical analysis</td> <td>1. used for Syntax analysis</td> </tr> <tr> <td>2. Runs independently</td> <td>2. cannot run without the lex part.</td> </tr> <tr> <td>3. Single C file is created while compiling Lex.</td> <td>3. Two files y.tab.c & y.tab.h are created while compiling YACC</td> </tr> </tbody> </table>	<u>Lex</u>	<u>YACC</u>	1. used for Lexical analysis	1. used for Syntax analysis	2. Runs independently	2. cannot run without the lex part.	3. Single C file is created while compiling Lex.	3. Two files y.tab.c & y.tab.h are created while compiling YACC	4.5
<u>Lex</u>	<u>YACC</u>										
1. used for Lexical analysis	1. used for Syntax analysis										
2. Runs independently	2. cannot run without the lex part.										
3. Single C file is created while compiling Lex.	3. Two files y.tab.c & y.tab.h are created while compiling YACC										
3.	a)	Explain different conflicts in YACC with examples.									
	A:	Shift/Reduce Parsing Reduce/Reduce Parsing Explanation with example	4 4 1/2								
3	b)	Explain the following									
		i) yyin() - Standard input.	1								
		ii) yyout() - Standard output	1								
		iii) yyleng() - Gives the length of the matched string	1								
		iv) yylex() - Invokes the lexer and returns the tokens.	1								

Part-B

4.	a)	Define YACC. what a YACC cannot parse? A: YACC is a tool used for parsing. YACC cannot parse the grammar having conflicts and grammar which needs the token two steps ahead.	1 3
4.	b)	Discuss about start states. A: A method of capturing context sensitive information within the lexer. Tagging the rules with start states tells the lexer only to recognize the rules when the start state is in effect. - Explanation with Example	4
4.	c)	Explain the format of YACC program. A: i) Rules Section ii) Definition Section iii) Subroutine Section Explain Each section.	1.5 1.5 1.5
5.	a)	Write the Regular Expressions to identify the following: i) Identifier $(([a-zA-Z] + [a-zA-Z0-9])^* ([_][a-zA-Z])^*)$ ii) Decimal Number $[0-9]^* \cdot [0-9]^+$	2 2

		iii) -ve Integer -?[0-9]+	2
		iv) +ve Fraction [0-9]*.[0-9]+	2
5.	b)	Explain Shift Reduce Parsing with example A: Explain the parsing using an example. Ex:- id-id*id	25 2
6.	a)	Explain the Lex Specification with an Example. i) Definition Section ii) Rules Section iii) user Subroutine section Explain each section with example.	2 2 2.5

6. b) Explain Lexical Parser communication

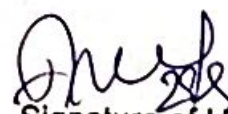


Explain the communication with the block diagram.

Mangala . Kini . B
Dept. of CSE

Bangdi

Name & Signature of Staff


Signature of HOD

USN

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI

(A unit of Alva's Education Foundation)

Fifth Semester B.E. (CSE)

I. A Test Examinations-II

29th October – 2015

10CS52 – SYSTEM SOFTWARE

Duration: 1 ½ Hour

Note: 1) Answer Two Full questions each Part.

Max. Marks: 50

PART-A

1. a) Explain the instruction formats and addressing modes of SIC/XE machine architecture. 08
b) Explain any five assembler directives. 4.5
2. a) Write the algorithm of Pass 1 of two pass assembler. 6.5
b) Write a program in both SIC and SIC/XE to copy a character string 'System Software' to another string. 06
3. a) Explain the data structures used in assembler algorithms. 6.5
b) Explain about Memory, Instruction format and addressing Modes of SIC machine architecture. 06

PART-B

4. a) Generate the complete object program for the following assembly level program.
CLEAR=B4, LDA=00, LDB=68, ADD=18, TIX=2C, JLT=38, STA=0C.

SUM	START	0
FIRST	CLEAR	X
	LDA	#0
	+LDB	#TOTAL
	BASE	TOTAL
LOOP	ADD	TABLE,X
	TIX	COUNT
	JLT	LOOP
	STA	TOTAL
COUNT	RESW	1
TABLE	RESW	2000
TOTAL	RESW	1
	END	FIRST

- b) List out the registers of SIC and mention its uses. 10
2.5
5. a) What is a relocatable program? Explain with an example. Give the format of modification record. 8
b) Give the differences between SIC and SIC/XE machine architecture. 4.5
6. a) Write a subroutine in SIC and SIC/XE to read a 100 byte record from a device 'F5' into memory 6.5
b) Give the format of a complete object program. 6

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI

(A unit of Alva's Education Foundation)

Seventh Semester B.E. (CSE)

I. A Test Examinations-II

SCEHEME OF EVALUATION

28th October - 2015

10CS52 - SYSTEM SOFTWARE

Note: 1) Answer any Two full questions in each part.

1.	a)	Explain the instruction formats & addressing modes of SIC/XE Instruction Format i) Format 1 ii) Format 2 iii) Format 3 iv) Format 4 Addressing Modes i) Direct ii) Relative iii) Immediate iv) Indirect v) Indexed	04
	b)	Explain any five assembler directives 1. START - Specify name & starting address of program 2. END - Indicate the End of the source program 3. BYTE - Generate character or hexadecimal constants 4. WORD - Generate one-word Integer constant. 5. RESB - Reserves the indicated number of bytes for a variable.	05
2.	a)	Write the algorithm of Pass-1 of two pass assembler. 1. Assign address to all the statements in the program 2. Save the values assigned to all labels for use in PASS 2. 3. Perform some processing of assembler directives	6.5
2.	b)	Write a program in both SIC and SIC/XE to copy a character string 'System Software' to another string.	

		<u>SIC</u> <pre> LDX ZERO MOVECH LDCH STR1,X STCH STR2,X TIX FIFTEEN JLT MOVECH . . . STR1 BYTE C 'SYSTEM SOFTWARE' STR2 RESB 15 ZERO WORD 0 ELEVEN WORD 11 </pre>	<u>SIC/XE</u> <pre> LDX #0 LDT #15 MOVECH LDCH STR1,X STCH STR2,X TIX RT JLT MOVECH . . . STR1 BYTE 'SYSTEM SOFTWARE' STR2 RESB 15 </pre>	6.5			
3	a)	Explain the data structures used in assembler algorithm. 1. Symbol Table (SYMTAB) 2. Location counter (LOCTR) 3. operation Table (OPTAB)		6.5			
	b)	Explain about Memory, Instruction Format and Addressing Modes of SIC machine architecture. <u>Memory</u> :- consists of 8-bit byte, 3 consecutive bytes <u>Instruction Format</u> :- <table border="1"> <tr> <td>opcode(8)</td> <td>X(1)</td> <td>Address(15)</td> </tr> </table> <u>Addressing Modes</u> :- 1. Direct addressing mode 2. Indexed Addressing mode	opcode(8)	X(1)	Address(15)		06
opcode(8)	X(1)	Address(15)					
4.	a)	Generate the complete object program for the following assembly level program. CLEAR = BH, LDA = 00, LDB = 68, ADD = 18, TIX = 2C, JLT = 38, STA = 0C.					

Location code	Source Statement	Object code
	SUM START 0	
0000	FIRST CLEAR X	B410
0002	LDA #0.	010000
0005	+LDB #TOTAL	69101788
	BASE TOTAL	
0009	LOOP ADD TABLE, X	1BA00C
000C	·TIX COUNT	2F2006
000F	JLT LOOP	3B2FF7
0012	STA TOTAL	0FH000
0015	COUNT RESW 1	
0018	TABLE RESW 2000	
1788	TOTAL RESW 1	
178B	END FIRST	

	<u>Object Program</u> H$\wedge$SUM $\wedge$000000$\wedge$00178B T$\wedge$000000$\wedge$15$\wedge$B410$\wedge$010000$\wedge$691D1788$\wedge$1BA00C$\wedge$ 2F2006$\wedge$3B2FF7$\wedge$0FH00 M$\wedge$000006$\wedge$05 E$\wedge$000000	4															
	b) List out the register of SIC and mention its uses. <table border="0"> <tr> <td>A</td> <td>0</td> <td>Accumulator</td> </tr> <tr> <td>X</td> <td>1</td> <td>Index register</td> </tr> <tr> <td>L</td> <td>2</td> <td>Linkage Register</td> </tr> <tr> <td>PC</td> <td>8</td> <td>Program Counter</td> </tr> <tr> <td>SW</td> <td>9</td> <td>Status word</td> </tr> </table>	A	0	Accumulator	X	1	Index register	L	2	Linkage Register	PC	8	Program Counter	SW	9	Status word	2.5
A	0	Accumulator															
X	1	Index register															
L	2	Linkage Register															
PC	8	Program Counter															
SW	9	Status word															
5	a) What is a relocatable Program? Explain with an Example. Give the format of Modification Record. * An object program that contains the information necessary to perform modification is called a relocatable program.	6															
	b) Give the difference b/w SIC & SIC/XE machine architectures <table border="1"> <thead> <tr> <th><u>SIC</u></th> <th><u>SIC/XE</u></th> </tr> </thead> <tbody> <tr> <td>1. Basic version</td> <td>1. Extended version</td> </tr> <tr> <td>2. 5 registers are used</td> <td>2. 9 registers are used.</td> </tr> <tr> <td>3. operations are between register & memory.</td> <td>3. Involves register to register operation</td> </tr> <tr> <td>4. Has only one instruction format</td> <td>4. It has four instruction format.</td> </tr> </tbody> </table>	<u>SIC</u>	<u>SIC/XE</u>	1. Basic version	1. Extended version	2. 5 registers are used	2. 9 registers are used.	3. operations are between register & memory.	3. Involves register to register operation	4. Has only one instruction format	4. It has four instruction format.	4.5					
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6	a)	Write a subroutine in SIC and SIC/XE to read a 100 byte record from a device 'FS' into memory. <u>SIC</u> <pre> JSUB READ ... READ LDX ZERO RLOOP TD INDEV JEA RLOOP RD INDEV STCH RECORD,X TIX K100 JLT RLOOP RSUB INDEV BYTE X'F5' RECORD RESB 100 ZERO WORD 0 K100 WORD 100 </pre> <u>SIC/XE</u> <pre> JSUB READ ... READ LDX #0 LDT #0 RLOOP TD INDEV JEA RLOOP RD INDEV STCH RECORD,X TIXR T JLT RLOOP RSUB INDEV BYTE X'F1' RECORD RESB 100 </pre>	3
6	b)	Give the format of a complete object program 1. Header Record. 2. Text Record 3. End Record 4. Modification Record	6

Bandhi
 Mangla Kiri B)
 Name & Signature of Staff

[Signature]
 Signature of HOD

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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI

(A unit of Alva's Education Foundation)

Fifth Semester B.E. (CSE)

I. A Test Examinations-III

14th November – 2015

10CS52 – SYSTEM SOFTWARE

Duration: 1 ½ Hour

Max. Marks: 50

Note: 1) Answer Two Full questions each Part.

PART-A

1. a) With required data structures and processing logic explain the implementation of literals within an assembler. 08
b) Explain symbol defining statements. 4.5
2. a) Explain the editor structure with diagram. 8
b) List the user interfaces for editors with an example for each. 4.5
3. a) Generate the complete object program for below SIC program.
Opcodes: STL=14, JSUB=48, LDA=00, COMP=28, JEQ=30, J=3C, STA=0C, LDL=08, RSUB=4C.

COPY	START	1000
FIRST	STL	RETADR
CLOOP	JSUB	RDREC
	LDA	LENGTH
	COMP	ZERO
	JEQ	ENDFIL
	JSUB	WRREC
	J	CLOOP
ENDFIL	LDA	EOF
	STA	BUFFER
	LDA	THREE
	STA	LENGTH
	JSUB	WRREC
	LDL	RETADR
	RSUB	
EOF	BYTE	C'EOF'
THREE	WORD	3
ZERO	WORD	0
RETADR	RESW	1
LENGTH	RESW	1
BUFFER	RESB	4096
- b) Explain expressions with example. 10
2.5

PART-B

4. a) Explain debugging functions and capabilities of interactive debugging systems 08
b) Explain the basic tasks of text editor. 4.5

5. a) Generate the complete object program for the below SIC/XE program.
LDX=04, LDA=00, LDB=68, ADD=18, TIX=2C, JLT=38, STA=0C, RSUB=4C.

SUM	START	0
FIRST	LDX	#0
	LDA	#0
	+LDB	#TABLE2
LOOP	BASE	TABLE2
	ADD	TABLE,X
	ADD	TABLE2,X
	TIX	COUNT
	JLT	LOOP
	+STA	TOTAL
	RSUB	
COUNT	RESW	1
TABLE	RESW	2000
TABLE2	RESW	2000
TOTAL	RESW	1
	END	FIRST

- b) Differentiate literals from immediate data.

6. Explain program blocks. With the pictorial representation generate the complete object program for the below SIC/XE instructions.

COPY	START	0
	LDX	#0
	LDT	#100
LOOP	TD	INDEV
	JEQ	LOOP
	RD	INDEV
	STCH	RECORD,X
	TIXR	T
	JLT	LOOP
	USE	XYZ
XYZ	RESW	1
ABC	WORD	1
	USE	
INDEV	BYTE	X'F1'
RECORD	RESB	100
	USE	SIMPLE
EFG	RESW	1
XY	WORD	1
	END	

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI*(A unit of Alva's Education Foundation)***Fifth Semester B.E. (CSE)****I. A Test Examinations-III****SCEHEME OF EVALUATION**17th November - 2015**10CS52 – SYSTEM SOFTWARE***Note: 1) Answer any Two full questions.*

1.	a)	With required data structures and processing logic explain the implementation of literals within an assembler Soln: Literals are used to write the value of a constant operand as a part of the instruction that uses it. A literals are identified with the prefix “=” Ex: 45 001A ENDFIL LDA=C'EOF' 032010 -Specifies a 3-byte operand whose value is the character string EOF. Ex: 215 1062 WLOOP TD=X'05' E32011 -Specifies a 1-byte literal with the hexadecimal value 05.	08
	b)	Explain symbol defining statements. Soln: Allow the programmer to define symbols and specify their values. <u>Assembler directive EQU</u> Improved readability in place of numeric values. Ex: +LDT #4096 MAXLENEQUBUFEND-BUFFER (4096) +LDT #MAXLEN <u>Assembler directive ORG</u> • Use to indirectly assign values to symbols. ORGvalue • The assembler resets its LOCCTR to the specified value. • ORG can be useful in label definition.	4.5
2	a)	Explain the editor structure with diagram Most text editors have a structure similar to shown in the figure regardless of features and the computers. • Command language Processor – accepts command –uses semantic routines – performs functions such as editing and viewing • The start of the area to be edited is determined by the current editing pointer maintained by the editing component • Editing component is a collection of modules dealing with editing tasks • The start of the area to be viewed is determined by the current viewing pointer maintained by the viewing component • Viewing component is a collection of modules responsible for determining the next view	08

- Viewing component invokes the viewing filter – generates a new viewing buffer – contains part of the document to be viewed from current viewing pointer.

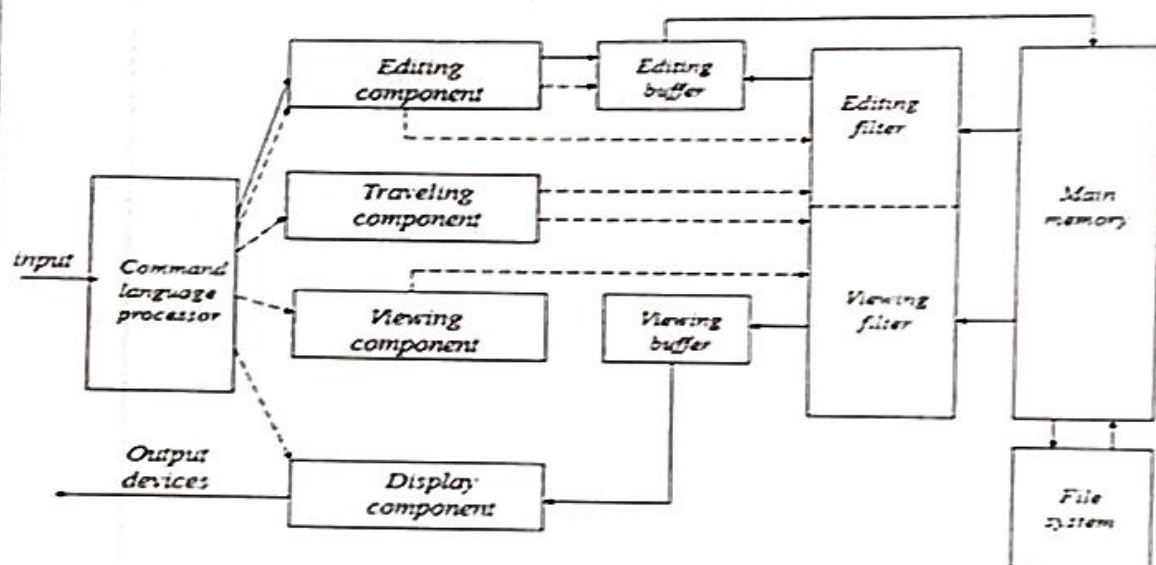


Fig: Typical Editor Structure

b) List the user interfaces for editors with an example for each.

- The user interface is concerned with
- The input devices
- The output devices
- The interaction language

INPUT DEVICES DIVIDED INTO THREE CATEGORIES

- Text Devices - keyboard
- Button Devices – special function keys, symbols on the screen
- Locator Devices – mouse, data tablet
 - Voice input devices – translates spoken words to their textual equivalents

OUTPUT DEVICES

- Teletypewriters - first output devices
- Glass teletypes - Cathode ray tube (CRT) technology
- Advanced CRT terminals

INTERACTION LANGUAGE

- Typing oriented or text command oriented
- Menu-oriented user interface

4.5

- 3 a) Generate the complete object program for below SIC program.
 Opcodes: STL=14, JSUB=48, LDA=00, COMP=28, JEQ=30, J=3C, STA=0C, LDL=08, RSUB=4C. assuming starting address of WRREC=2061 and REREC= 2039

locctr				Object Code
	COPY	START	1000	
1000	FIRST	STL	RETADR	141033
1003	CLOOP	JSUB	RDREC	482039
1006		LDA	LENGTH	001036
1009		COMP	ZERO	281030
100c		JEQ	ENDFIL	301015
100f		JSUB	WRREC	482061
1012		J	CLOOP	3C1003
1015	ENDFIL	LDA	EOF	00102A
1018		TA	BUFFER	0C1039
101B		LDA	THREE	00102D
101E		STA	LENGTH	0C1036
1021		JSUB	WRREC	482061
1024		LDL	RETADR	081033
1027		RSUB		4C0000
102A	EOF	BYTE	C'EOF'	454F46
102D	THREE	WORD	3	000003
1030	ZERO	WORD	0	000000
1033	RETADR	RESW	1	
1036	LENGTH	RESW	1	
1039	BUFFER	RESB	4096	

$H \wedge COPY \wedge 001000 \wedge 000039$
 $T \wedge 001000 \wedge 1E \wedge 141033 \wedge H82039 \wedge 001036 \wedge 281030 \wedge$
 $301015 \wedge H82061 \wedge 3C1003 \wedge 00102A \wedge 0C1039 \wedge$
 $00102D$
 $T \wedge 00101E \wedge 16 \wedge 0C1036 \wedge H82061 \wedge H82061 \wedge 081033 \wedge$
 $H00000 \wedge H54F46 \wedge 000003 \wedge 000000$
 $E \wedge 001000$

b) Explain expressions with example.

Allow arithmetic expressions formed

- Using the operators +, -, ×, /.
- Division is usually defined to produce an integer result.
- Expression may be constants, user-defined symbols, or special terms.
- 106 1036 BUFEND EQU *
- Gives BUFEND a value that is the address of the next byte after the buffer area.
- Absolute expressions or relative expressions
- A relative term or expression represents some value (S+r), S: starting address, r: the relative value.

4.	a)	Explain debugging functions and capabilities of interactive debugging systems • Debugging is a methodical process of finding and reducing the number of bugs, or defects, in a computer program • An interactive debugging system provides programmers with facilities that aid in testing and debugging of programs • Debugging system should also provide functions such as tracing and trace back • Trace back can show the path by which the current statement in the program was reached. • It can also show which statements have modified a given variable or parameter. • The statements are displayed rather than as hexadecimal displacements	08
	b)	Explain the basic tasks of text editor. Document-editing process in an interactive user-computer dialogue has four tasks • Select the part of the target document to be viewed and manipulated • Determine how to format this view on-line and how to display it • Specify and execute operations that modify the target document • Update the view appropriately	4.5

5	a)	Generate the complete object program for the below SIC/XE program. LDX=04, LDA=00, LDB=68, ADD=18, TIX=2C, JLT=38, STA=0C, RSUB=4C. <table border="1"> <thead> <tr> <th>Locctr</th><th></th><th></th><th></th><th>Object Code</th></tr> </thead> <tbody> <tr> <td></td><td>SUM</td><td>START</td><td>0</td><td></td></tr> <tr> <td>0000</td><td>FIRST</td><td>LDX</td><td>#0</td><td>050000</td></tr> <tr> <td>0003</td><td></td><td>LDA</td><td>#0</td><td>010000</td></tr> <tr> <td>0006</td><td></td><td>+LDB</td><td>#TABLE2</td><td>69101790</td></tr> <tr> <td></td><td></td><td>BASE</td><td>TABLE2</td><td></td></tr> <tr> <td>000A</td><td>LOOP</td><td>ADD</td><td>TABLE,X</td><td>1BA013</td></tr> <tr> <td>000D</td><td></td><td>ADD</td><td>TABLE2,X</td><td>1BC000</td></tr> <tr> <td>0010</td><td></td><td>TIX</td><td>COUNT</td><td>2F200A</td></tr> <tr> <td>0013</td><td></td><td>JLT</td><td>LOOP</td><td>3B2FFA</td></tr> <tr> <td>0016</td><td></td><td>+STA</td><td>TOTAL</td><td>0F102F00</td></tr> <tr> <td>001A</td><td></td><td>RSUB</td><td></td><td>4F0000</td></tr> <tr> <td>001D</td><td>COUNT</td><td>RESW</td><td>1</td><td></td></tr> <tr> <td>0020</td><td>TABLE</td><td>RESW</td><td>2000</td><td></td></tr> <tr> <td>1790</td><td>TABLE2</td><td>RESW</td><td>2000</td><td></td></tr> <tr> <td>2F00</td><td>TOTAL</td><td>RESW</td><td>1</td><td></td></tr> <tr> <td>2F03</td><td></td><td>END</td><td>FIRST</td><td></td></tr> </tbody> </table>	Locctr				Object Code		SUM	START	0		0000	FIRST	LDX	#0	050000	0003		LDA	#0	010000	0006		+LDB	#TABLE2	69101790			BASE	TABLE2		000A	LOOP	ADD	TABLE,X	1BA013	000D		ADD	TABLE2,X	1BC000	0010		TIX	COUNT	2F200A	0013		JLT	LOOP	3B2FFA	0016		+STA	TOTAL	0F102F00	001A		RSUB		4F0000	001D	COUNT	RESW	1		0020	TABLE	RESW	2000		1790	TABLE2	RESW	2000		2F00	TOTAL	RESW	1		2F03		END	FIRST		07
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$H \wedge START \wedge 000000 \wedge 002F03$

$T \wedge 000000 \wedge 1A \wedge 050000 \wedge 010000 \wedge 69101790 \wedge 1BA013 \wedge$
 $1BC000 \wedge 2F200A \wedge 3B2FFA \wedge 0F102F00$

$\wedge$ H F0000
 $M \wedge 000007 \wedge 05$
 $M \wedge 000017 \wedge 05$
 $E \wedge 000000$

03

b) Differentiate literals from immediate data.

The difference between literal operands and immediate operands =, #

- Immediate addressing, the operand value is assembled as part of the machine instruction, no memory reference.
- With a literal, the assembler generates the specified value as a constant at some other memory location. The address of this generated constant is used as the TA for the machine instruction, using PC-relative or base-relative addressing with memory reference.

2.5

6

Explain program blocks. With the pictorial representation generate the complete object program for the below SIC/XE instructions.
 Opcodes: LDX=04, LDT=74, TD=E0, JEQ=30, RD=D8, STCH=54, TIXR=B8, JLT=38

Locctr				Object Code
	COPY	START	0	
0000		LDX	#0	050000
0003		LDT	#100	750100
0006	LOOP	TD	INDEV	E3200E
0009		JEQ	LOOP	332FFA
000C		RD	INDEV	DB2008
000F		STCH	RECORD,X	57A006
0012		TIXR	T	B850
0014		JLT	LOOP	3B2FEF
0000		USE	XYZ	
0000	XYZ	RESW	1	
0003	ABC	WORD	1	000001
0017		USE		
0017	INDEV	BYTE	X'F1'	F1
0018	RECORD	RESB	100	
0000		USE	SIMPLE	
0000	EFG	RESW	1	
0003	XY	WORD	1	000001
		END		

6 1/2

$H \wedge COPY \wedge 000000 \wedge 0000088$
 $T \wedge 000000 \wedge 17 \wedge 050000 \wedge 750100 \wedge E3200E \wedge 332FFA$

^DB2008 ^ 57A 006 ^ B8 50 ^ 3B2FEF

T ^ 00007F ^ 03 ^ 000001

T ^ 000017 ^ 01 ^ F1

T ^ 000085 ^ 03 ^ 000001

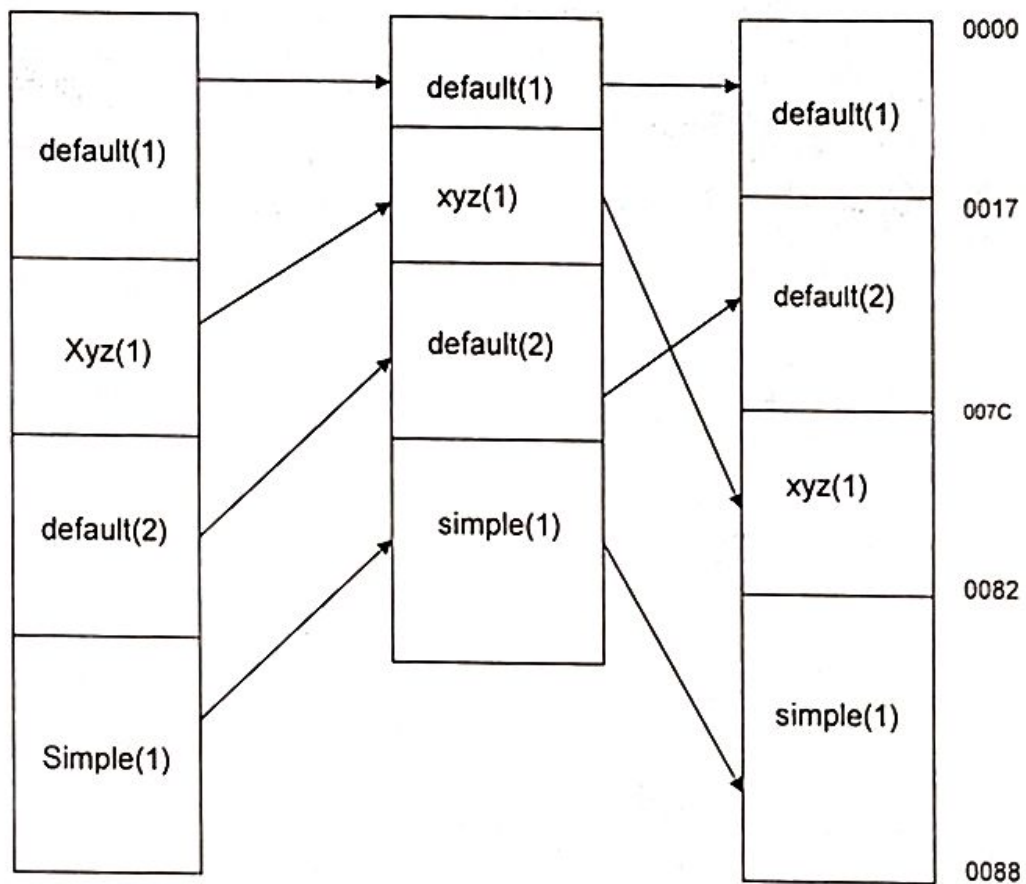
E ^ 000000

03

Source program

Object program

Program loaded in memory



03

Mangala Kiri B

Barfi 17/11/15
Name & Signature of Staff

[Signature]
Signature of HOD

Fifth Semester B.E. Degree Examination, June/July 2011
System Software

Time: 3 hrs.

Max. Marks:100

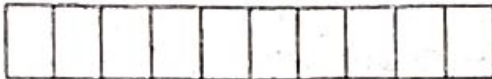
*Note: Answer FIVE full questions selecting
at least TWO questions from each part*

PART - A

1. a. Differentiate between system software and application software. (04 Marks)
 b. Explain the following with reference to SIC/XE machine architecture :
 i) Instruction formats
 ii) Addressing modes
 iii) Data formats
 iv) Register organization. (10 Marks)
 c. Write an ALP in SIC/XE to add 2 arrays of 100 integers. (06 Marks)
2. a. Explain the different data structures used in designing SIC assembler. (08 Marks)
 b. Discuss pass 1 algorithm of 2 pass assembler. (10 Marks)
 c. What are assembler directives? Give examples. (02 Marks)
3. a. Differentiate between program blocks and control sections. Explain how control sections are processed. (10 Marks)
 b. Differentiate between literal and immediate operand with example. (04 Marks)
 c. Discuss different design options of assembler. (06 Marks)
4. a. What is a loader? List the functions of a loader. Develop an algorithm for a bootstrap loader. (10 Marks)
 b. What is dynamic loading? What are its advantages and disadvantages? Explain with a neat diagram loading and calling of a subroutine using dynamic linking. (10 Marks)

PART - B

5. a. Explain the structure of a text editor. (10 Marks)
 b. Describe interactive debugging system. (10 Marks)
6. a. Explain various data structures required for the design of a macro processor with an example. (10 Marks)
 b. Explain any three m/c independent macro processor features. (10 Marks)
7. a. Explain the structure of LEX specification with example. (10 Marks)
 b. Discuss how lexer and parser communicate. (10 Marks)
8. a. Write YACC specification to recognize nested If control statements and display the number of levels of nesting. (10 Marks)
 b. Differentiate between lex and yacc. (05 Marks)
 c. Define the following terms with examples :
 i) Non - terminals.
 ii) y.tab.h
 iii) Symbol table
 iv) Pattern
 v) Lexical analysis. (05 Marks)



Fifth Semester B.E. Degree Examination, December 2011
Systems Software

Time: 3 hrs.

Max. Marks:100

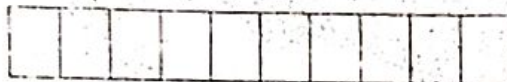
*Note: Answer any FIVE full questions, selecting
at least TWO questions from each part.*

PART - A

1. a. What is system software? Compare system software with application software and give couple of examples. (04 Marks)
 b. Explain the instruction formats and addressing modes of SIC/XE machine architecture. (10 Marks)
 c. Suppose the ALPHA is an array of 100 words. Write a sequence of instructions for SIC/XE to set all 100 elements of the array to ZERO. Use immediate addressing and register to register addressing to make the process as efficient as possible. (06 Marks)
2. a. What are the fundamental functions that any assembler must perform? With a suitable example, explain any six assembler directives. (10 Marks)
 b. Write an algorithm for PASS-1 of two pass assembler and explain with an example. (10 Marks)
3. a. What is literal? What are differences between literal and immediate operand. (04 Marks)
 b. What are program blocks? With a suitable example, explain how program blocks are handled by an assembler. (06 Marks)
 c. Give the format of the following records necessary to obtain object code :
 i) Define record ii) Refer record iii) Modification record (revised) (10 Marks)
4. a. What is loader? What are the basic functions the loader has to perform? (04 Marks)
 b. What is relocation? Explain the methods for specifying relocation as a part of object program. (08 Marks)
 c. Explain the working of linkage editor and linking loader. (08 Marks)

PART - B

5. a. Explain the different tasks to be accomplished by a text editor for an interactive user computer dialogue. (10 Marks)
 b. With a neat diagram, explain the working of a typical editor structure. (10 Marks)
6. a. What is MACRO? Briefly discuss various data structures required for a design of MACRO PROCESSOR. (08 Marks)
 b. With regard to machine independent macroprocessor feature, explain the followings :
 i) Concatenation of MACRO parameters ii) Generation of unique labels
 iii) Conditional MACRO expansion iv) Keyword macro parameters. (12 Marks)
7. a. Discuss the characters that used in the meta language as part of standard ASCII character set used in UNIX operating system. (08 Marks)
 b. What is LEX? Explain the LEX specification format. (06 Marks)
 c. Write a LEX program to identify the decimal number. (06 Marks)
8. a. What is YACC? Explain the different sections used in writing the YACC specification. (10 Marks)
 b. Write a YACC program to function as a calculator which performs addition, subtraction multiplication, division and unary operations. (10 Marks)



Fifth Semester B.E. Degree Examination, June 2012
System Software

Time: 3 hrs.

Max. Marks: 100

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

PART - A

1. a. Explain the instruction formats and addressing modes of SIC/XE machine. (10 Marks)
 b. Write a program in both SIC and SIC/ XE to copy a character string 'system software' to another string. (10 Marks)

2. a. Explain the five fundamental functions of an SIC assembler. (05 Marks)
 b. Explain the data structures used in assembler algorithms. (05 Marks)
 c. Generate the object code for each statement and write the object programs for the following SIC/XE program.
 (Given that : LDX = 04, LDA = 00, LDB = 68, ADD = 18, TIX = 2C, JLT = 38, STA = 0C, RESUE = 4C).

SUM	START	O
FIRST	LDX	# O
	LDA	# O
	+LDB	# TABLE 2
	BASE	TABLE 2
LOOP	ADD	TABLE, X
	ADD	TABLE2, X
	TIX	COUNT
	JLT	LOOP
	+STA	TOTAL
	RSUB	
COUNT	RESW	1
TABLE	RESW	2000
TABLE2	RESW	2000
TOTAL	RESW	1
	END	FIRST

3. a. List the machine independent features of assembler. Explain any two. (10 Marks)
 b. Explain the features of load-and-go assembler. (05 Marks)
 c. Compare MASM assembler with SIC assembler. (05 Marks)
4. a. Write the code for boot strap loader. Explain briefly. (05 Marks)
 b. Explain the data structures used in linking loaders. (05 Marks)
 c. State and explain the various loader design options. (10 Marks)

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

PART - B

- 5 a. Explain the four tasks involved in user-computer-dialogues of an editing system. (04 Marks)
b. Explain the editor structure, with diagram. (08 Marks)
c. Explain the debugging functions and capabilities of interactive debugging system. (08 Marks)
- 6 a. Explain the data structures involved in macroprocessor algorithms. (06 Marks)
b. Write an algorithm for one-pass macroprocessor. (08 Marks)
c. Explain the features of general purpose macroprocessors. (06 Marks)
- 7 a. Explain the three basic sections of a LEX program. (06 Marks)
b. Write a LEX program to count number of words, characters and lines in a given file. (06 Marks)
c. Explain the following regular expressions, with example :
i) [] ii) { } iii) / iv) (). (08 Marks)
- 8 a. Define YACC-tools. What are two types of conflicts in YACC? Give examples. (10 Marks)
b. Write a YACC program to validate a simple arithmetic expression involving operators +, -, *, /. (10 Marks)

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Fifth Semester B.E. Degree Examination, Dec.2013/Jan.2014
System Software

Time: 3 hrs.

Max. Marks:100

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

PART - A

- 1 a. Bring out the differences between system software and application softwares, with examples. (04 Marks)
- b. Explain the SIC / XE machine architecture in detail. (12 Marks)
- c. Suppose that RECORD contains a 100 byte record. Write a subroutine for SIC / XE that will write this record onto device F1. Use immediate addressing and register-to-register instructions to make the subroutine as efficient as possible. (04 Marks)
- 2 a. Write and explain the algorithm for a PASS-1 of a two-pass assembler. (10 Marks)
- b. Generate the complete object program for the source program given below:

```

SUM      START  0
FIRST    LDX    #0
          LDA    #0
          LDB    #TABLE2
          BASE   TABLE2
LOOP     ADD    TABLE, X
          ADD    TABLE2, X
          TIX    COUNT
          JLT    LOOP
          STA    TOTAL
          RSUB
COUNT   RESW   1
TABLE    RESW   2000
TABLE2   RESW   2000
TOTAL    RESW   1
          END    FIRST
  
```

Assume the below opcodes for mnemonics.

(10 Marks)

Mnemonic	Opcode
ADD	18
JLT	38
LDA	00
LDB	68
LDX	04
RSUB	4C
STA	0C
TIX	2C

- 3 a. Distinguish between literal and immediate operands. How does the assembler handle the literal operands? (05 Marks)

- 3 b. Assuming the following symbol table definitions:

Symbol	Type
BUFFER	Relative
FIRST	Relative
MAXLEN	Absolute
LENGTH	Relative
BUFEND	Relative

Classify the following into absolute, relative or neither absolute nor relative expressions:

- (i) BUFFER - FIRST (ii) BUFFER + 4095
 (iii) MAXLEN - 1 (iv) BUFFER + MAXLEN - 1
 (v) BUFFER - MAXLEN (vi) 2 * LENGTH
 (vii) 2 * MAXLEN - 1 (viii) MAXLEN - BUFFER
 (ix) FIRST + BUFFER (x) FIRST - BUFFER + BUFEND (05 Marks)
- c. Give the formats of the following records:
- (i) Define record (ii) Refer record (04 Marks)
- d. Write the schematic of symbol table entries that shows how multipass assembler handles the following forward references:
- | | | | |
|---|--------|------|-----------------|
| 1 | HALFSZ | EQU | MAXLEN / 2 |
| 2 | MAXLEN | EQU | BUFEND - BUFFER |
| 3 | BUFFER | RESB | 2048 |
| 4 | BUFEND | EQU | * |

Assume that when line 3 is read, the location counter contains the hexadecimal value 750.

- 4 a. Write the SIC/XE source code for a simple bootstrap loader. (06 Marks)
 b. Explain dynamic linking with suitable diagrams. (07 Marks)
 c. Explain the facilities available in MS-DOS linker for program linking. (07 Marks)
 (06 Marks)

PART - B

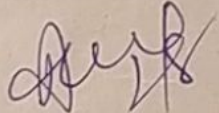
- 5 a. With a neat diagram, explain the structure of a text editor. (10 Marks)
 b. Explain the debugging functions and capabilities of an interactive debugging system. (06 Marks)
 c. Write a note on the concept of user-interface criteria in a text editor. (04 Marks)
- 6 a. Explain the various data structures used in the implementation of a macro processor. (08 Marks)
 b. Explain the following machine-independent macro processor features with examples:
 (i) Concatenation of macro parameters.
 (ii) Generation of unique labels.
 (iii) Keyword macro parameters. (12 Marks)
- 7 a. Explain the communication between the Parser and Lexer with a neat block diagram. (05 Marks)
 b. What is a regular expression? Explain the various regular expressions in UNIX with examples for each. (10 Marks)
 c. Write a LEX program to count the number of vowels and consonants in a given string. (05 Marks)
- 8 a. Explain the structure of a YACC program. (06 Marks)
 b. Write a YACC program to recognize an arithmetic expression involving operators +, -, *, and /. (08 Marks)
 c. What is shift / reduce parsing? Explain with an example. (06 Marks)

AIET	Lesson Plan & Execution			Format No.	ACD 08
				Issue No.	01
				Rev. No.	00
Name of the faculty		MANGALA KINI B			
Semester and Section		V A			
Date of Commencement		01/08/2015			
Last Working Day of the Semester		20/11/2015			
Source Materials List					
1. Lex & Yacc - John R. Levine, Tony Mason		John R. Levine, Tony Mason			
2. System Software - Leland L. Beck		Leland L. Beck			
3.					
4.					
5.					
Subject Name System Software					
Period	Plan			Execution	
	Date	Topics to be covered	Source Material needed	Topics Covered	Date
1.	01/08/15	Unit-1 1. Lex and Yacc - The simplest Lex Program. 2. Recognizing words with LEX	1	Introduction of LEX & YACC	01/08/15
2.	03/08/15	1. Symbol Tables, Grammars, 2. Parser - Lexer communication	1	Lex and Yacc - The simplest Lex Program	03/08/15
3.	04/08/15	1. The Parts of Speech Lexer, 2. A YACC Parser 3. The Rules Section.	1	Recognizing words with LEX, Symbol Tables.	04/08/15
4.	05/08/15	1. Running Lex & Yacc. 2. Lex and Hand-written Lexers.	1	Grammars, Parser - Lexer communication The Parts of Speech Lexer.	05/08/15

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
5.	06/08/15	1. Using Lex - Regular Expression 2. Examples of Regular Expression	1	A Yacc Parser, The Rules section	6/08/15	1
6.	08/08/15	1. A word counting Program 2. Parsing a command line	1	Running Lex & Yacc, Lex & Hand written Lexers.	8/8/15	1
7.	10/08/15	Unit - 8 Using YACC - Grammar. 2. Recursive Rules	1	Using Lex - Regular Expression	10/08/15	1
8.	11/08/15	Shift / Reduce Parsing	1	Examples of Regular Expression, A word counting Program.	12/08/15	1
9.	12/08/15	what YACC cannot Parse, A YACC parser - The definition Section	1	Parsing a Command line	13/08/15	1
10.	13/08/15	The Rules Section, symbol values and Actions.	1	Using yacc - Grammar Recursive Rules	25/8/15	1
11	17/08/15	1. The LEXER, 2. compiling and Running a simple Parser.	1	Shift / Reduce Parsing	26/8/15	1
12	18/08/15	1. Arithmetic Expressions and Ambiguity 2. variables & Typed Tokens	1	Shift / Reduce Parsing	27/8/15	1
13	19/08/15	Unit - 1 Introduction	2	what YACC cannot Parse, A Yacc - parser definition Section	29/8/15	2
14	20/08/15	System Software and Machine Architecture.	2	The Rules section, Symbol values & Actions	31/8/15	2
15	22/08/15	Simplified Instructional computer (SIC)	2	The lexer, compiling & Running a simple Parser	01/9/15	2
16	24/08/15	SIC Machine Architecture	2	Arithmetic exp & ambiguity variables & Typed Tokens	02/9/15	2
17	25/08/15	SIC / XE Machine Architecture	2	conducted a test for 7 th unit.	03/9/15	2

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
18	26/08/15	SIC Programming Examples.	2	Introduction System Software & Machine architecture	05/09/15	2
19	27/08/15	<u>Unit-2</u> Basic Assembler Functions	2	SIC, SIC Machine Architecture	7/9/15	2
20	29/08/15	A Simple SIC Assembler.	2	SIC Machine Architecture	08/9/15	2
21	31/08/15	Assembler Alignment and Data Structures.	2	SIC/XE Machine architecture	09/9/15	2
22	1/09/15	Machine Dependent Assembler Features	2	SIC/XE Machine architecture	12/9/15	2
23	2/09/15	Instruction Formats & addressing modes	2	SIC Programming Examples	14/9/15	2
24	3/09/15	Program Relocation	2	SIC Programming Examples	15/9/15	2
25	5/09/15	Revision	2	SIC Programming Examples	16/9/15	2
26	10/09/15	<u>Unit-3</u> Machine Independent Assembler Features	2	SIC Programming Examples	18/9/15	2
27	11/09/15	Literals, Symbol-definition Statements, Expression.	2	SIC Programming Examples.	19/9/15	2
28	14/09/15	Program Blocks, Control sections & Linking.	2	SIC Programming Examples.	19/9/15	2
29	15/09/15	Assembler Design operations - one-pass Assembler.	2	Basic Assembler Functions.	21/9/15	2
30	16/09/15	Multi-Pass Assembler	2	Basic Assembler Functions	21/9/15	2

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
31	19/09/15	Implementation Examples - MASM Assembler.	2	A Simple SIC assembler	22/9/15	2
32	21/09/15	<u>Unit - 5</u> Text Editors, Overview of Editing Process	2	A Simple SIC assembler	22/9/15	2
33	22/09/15	User Interface	2	A simple SIC assembler.	23/9/15	2
34	23/09/15	Editor Structure	2	Revision.	26/9/15	2
35	26/09/15	Interactive Debugging Systems - Debugging Functions & capabilities	2	Assembler algorithm (Pass 1)	01/10/15	2
36	28/09/15	Relationship with other parts of the system.	2	Assembler algorithm (Pass 1)	03/10/15	2
37	29/09/15	User - Interface Criteria.	2	Data structures and Pass 2	05/10/15	2
38	30/09/15	<u>Unit - 4</u> Basic loader Functions, Design of an Absolute loader.	2	Assembler algorithm Pass 2	06/10/15	2
39	01/10/15	A simple Bootstrap loader - Dependent loader Features - Relocation	2	Machine dependent assembler features	07/10/15	2
40	03/10/15	Program Linking, Algorithm & Data structures for a linking loader.	2	Machine dependent assembler features	08/10/15	2
41	05/10/15	Machine - Independent loader Features - Automatic lib search.	2	Machine dependent assembler features.	09/10/15	2
42	06/10/15	loader options, loader Design options.	2	Instruction formats & addressing modes	10/10/15	2
43	07/10/15	Linkage Editor, Dynamic Linkage Bootstrap loaders	2	Instruction formats & addressing modes	13/10/15	2

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
44	13/10/15	Implementation of MS-DOS Linker.	2	Instruction Format & addressing mode	14/10/15	2
45	14/10/15	Unit 6 Basic Macro Processor Functions - Macro Def & Expansion.	2	Program Relocation	15/10/15	
46	15/10/15	Macro Processor Algo & Data Structures, Machine-Independent Macro Processor Features	2	Unit-3 Machine Independent assembler features, Literals, Symbol defining, statements.	20/10/15	
47	17/10/15	Concatenation of Macro Parameters, Generation of unique Labels.	2	Program Block, control sections & program linkage. Assembly design operations.	21/10/15	
48	19/10/15	conditional Macro Expansion, Keyword Macro Parameters	2	Multi-Pass assembler, Implementation Ex - MASM assembler	26/10/15	
49	20/10/15	Macro Processor Design options - Recursive Macro Expansion	2	Unit-5 Text editors, Overview of editing packages, User Interface.	26/10/15	
50	21/10/15	General - Purpose Macro Processors	2	Editor structures, Interactive debugging functions & capabilities.	31/10/15	
51	26/10/15	Macro Processing within Language Translators	2	Relationship with other parts of the system. user-Interface criteria.	31/10/15	
52	27/10/15	Implementation of MASM Macro Processor, ANSI C Macro Processor.	2	Unit-4 Basic loader functions. Design of an absolute loader.	02/11/15	
53				A simple Bootstrap loader. Dependent loader features - Relocation.	03/11/15	
54				Program Linking, Algorithms & Data structures of a linking loader.	04/11/15	
55				Machine-Independent loader features - Automatic lib search, loader options	05/11/15	
56				loader design options, linkage editor, Dynamic linkage, Bootstrap loaders.	07/11/15	

[illegible]

Others	Planned	Actual	Remarks :
Special Classes	5	4	
Tutorials	5	4	
Assignments	3	3	
Seminars	0	-	
IA Tests	3	3	
Portions Covered in the entire Semester	6 Units		

Course Effectiveness

Students Feedback	Good.		
Students Responce	Good.		
Result	No. of Students AP	No. of Students Passed	% of Result
	53	53	100%.

Bandy
Faculty In Charge

[Signature]
Signature of Principal (& Remarks if any)

[Signature]
HOD's Signature

ALVA'S INSTITUTE OF ENGINEERING

ND TECHNOLOGY

MIJAR

OODBIDRI - 574 225

ATTENDANCE CUM INTERNAL

Class : V A

Subject : System Software

No. of Classes held :

Sl. No.	U.S.N.	Name	Date / Month																															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	13CS009	Anoop Naik	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	A	A	27		
2	13CS010	Anusha Ajith	A	1	2	3	4	5	6	7	8	9	A	A	A	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
3	13CS036	Gireesh Mon.P.M	1	2	3	4	5	6	7	8	9	10	11	12	A	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
4	13CS018	Manisha K.P	A	1	2	3	4	5	6	7	A	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	A	A	A	25		
5	13CS062	Payal M.P Shetty	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
6	13CS001	Adarsh Ajith	A	1	2	A	3	A	A	5	6	7	8	9	A	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
7	13CS002	Adhiel Hussain	1	2	A	A	3	4	A	5	6	A	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
8	13CS003	Aishwarya K Shetty	A	1	2	3	4	5	6	7	8	9	A	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	A	A	A	25		
9	13CS004	Akash G	A	1	A	A	2	A	3	4	5	6	7	8	9	A	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
10	13CS005	Aarthatha Bhat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
11	13CS007	Amina Sajaha	1	2	3	4	5	6	7	8	9	10	11	12	A	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
12	13CS008	Anikulan Noel	A	1	A	2	3	A	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	21	22	23	24	25	26		
13	13CS009	Anjana Jose	1	2	A	3	4	5	6	7	8	9	10	11	A	12	13	14	15	16	17	18	19	20	A	21	22	23	24	25	26	27		
14	13CS010	Anusha	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	A	22	23	24	25	26	27	28		
15	13CS011	Anusha S Aradhya	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	A	A	A	26		
16	13CS012	Anusha V	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	A	A	A	26		
17	13CS013	Anusha Shubhaver J	1	2	3	4	5	6	A	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
18	13CS015	Aspita S Bhat	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
19	13CS016	Arya KM	A	1	2	3	4	5	6	7	8	9	10	A	A	11	12	13	14	15	16	17	18	19	A	20	21	22	23	24	25	26		
20	13CS018	Anif	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	A	27	28	29		
21	13CS019	B Aswatha	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
22	13CS020	Bhandary Shreyas S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
23	13CS021	Bharath R	A	1	2	3	4	5	6	7	8	A	A	A	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
24	13CS022	Bindu S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	A		
25	13CS023	Billy Grace George	1	2	3	4	5	6	7	8	9	A	A	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
26	13CS024	Darshana K	1	2	3	4	5	6	7	8	9	10	11	12	A	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
27	13CS025	Deeksha Shetty B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
28	13CS026	Deeksha Shetty D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
29	13CS027	Deena Deepika C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	21	22	23	24	25	26	27	28	29		
30	13CS028	Deepak D K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Staff Initials			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD		

ap

ap

No. of Classes held :

31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
28	29	30	A	A	A	A	A	31	32	33	34	35	36	37	38	39	40	41	42	43	A	A	45	46	47	48	49	50	51	52
29	30	31	A	32	33	34	35	36	37	A	38	39	40	41	42	43	44	45	46	47	48	49	50	A	51	52	53	54	55	
30	31	32	A	A	A	A	A	A	33	34	35	36	37	38	39	40	41	42	43	44	A	A	45	46	47	48	49	50	51	52
31	32	33	A	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58
32	33	34	A	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59
33	34	35	A	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60
34	35	36	A	37	38	39	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60	
35	36	37	A	38	39	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60		
36	37	38	A	39	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60			
37	38	39	A	40	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60				
38	39	40	A	41	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60					
39	40	41	A	42	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60						
40	41	42	A	43	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60							
41	42	43	A	44	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60								
42	43	44	A	45	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60									
43	44	45	A	46	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60										
44	45	46	A	47	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60											
45	46	47	A	48	49	50	A	A	51	52	53	54	55	56	57	58	59	60												
46	47	48	A	49	50	A	A	51	52	53	54	55	56	57	58	59	60													
47	48	49	A	50	A	A	51	52	53	54	55	56	57	58	59	60														
48	49	50	A	A	A	51	52	53	54	55	56	57	58	59	60															
49	50	A	A	A	51	52	53	54	55	56	57	58	59	60																
50	A	A	A	51	52	53	54	55	56	57	58	59	60																	
51	A	A	51	52	53	54	55	56	57	58	59	60																		
52	A	51	52	53	54	55	56	57	58	59	60																			
53	A	51	52	53	54	55	56	57	58	59	60																			
54	A	51	52	53	54	55	56	57	58	59	60																			
55	A	51	52	53	54	55	56	57	58	59	60																			
56	A	51	52	53	54	55	56	57	58	59	60																			
57	A	51	52	53	54	55	56	57	58	59	60																			
58	A	51	52	53	54	55	56	57	58	59	60																			
59	A	51	52	53	54	55	56	57	58	59	60																			
60	A	51	52	53	54	55	56	57	58	59	60																			

S. No.	Marks	Grade	Internal Assessment (25)			Average Marks
			Part A	Part B	Part C	
1	60	I				
2		AB	90	55	08	21
3		10	88	54	08	19
4		15	85	52	AB	20
5		05	80	49	08	21
6		15	93	57	11	16
7		17	85	52	12	16
8		08	85	52	09	20
9		12	91	56	11	17
10		AB	85	52	19	18
11		18	98	60	15	19
12		16	93	57	12	20
13		15	87	53	15	20
14		15	88	54	13	21
15		16	91	56	16	23
16		19	93	57	12	21
17		19	90	55	15	24
18		23	91	56	AB	23
19		21	98	60	21	24
20		22	88	54	18	22
21		15	95	58	10	16
22		16	96	59	AB	24
23		17	98	60	15	21
24		15	86	53	AB	23
25		20	95	58	21	24
26		10	85	52	12	22
27		15	93	57	15	23
28		15	95	58	17	20
29		10	93	57	13	18
30		16	96	59	15	17
31		19	100	61	11	21
32		AB	AB	AB	AB	AB
33		AB	AB	AB	AB	AB
34		AB	AB	AB	AB	AB
35		AB	AB	AB	AB	AB
36		AB	AB	AB	AB	AB
37		AB	AB	AB	AB	AB
38		AB	AB	AB	AB	AB
39		AB	AB	AB	AB	AB
40		AB	AB	AB	AB	AB

ALVA'S INSTITUTE OF ENGINEERING

MJAR

ATTENDANCE CUM INTERNAL

Class : V A

Subject : System Software.

No. of Classes held :

ND TECHNOLOGY

DODBIDRI - 574 225

Subject :

Date / Month			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Sl. No.	U.S.N.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	13CS029	Deepika B Shetty	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14															
2	13CS030	Deeprasad S Shetty	1	2	3	4	5	A	6	7	8	9	10	11	12	13	14															
3	13CS031	Dileep Kumar	1	2	3	4	5	6	7	8	9	10	11	12	13	A	A															
4	13CS032	Drishya S Babu	1	2	3	4	5	6	7	8	9	10	11	12	A	13	14															
5	13CS034	Gaurav Suvarna	1	2	3	4	5	6	A	7	8	9	10	11	12	13	14															
6	13CS035	Goutami P Hebbar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
7	13CS036	Gourava	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
8	13CS037	Gourav Hippasagi	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14															
9	13CS038	Hasmitha B V	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14															
10	13CS039	Hellen Treasa John	1	2	3	4	5	6	7	8	9	10	11	12	A	13	14															
11	13CS040	Hitesh Harikrishnan	A	1	2	3	4	5	6	7	8	9	10	11	A	12	13															
12	13CS041	Iripama M S	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14															
13	13CS043	Jerin Jose	A	1	2	A	3	4	5	6	7	8	9	10	A	11	12															
14	13CS044	Jisha Emmanuel	A	1	2	3	4	5	6	7	8	9	10	11	A	12	13															
15	13CS045	Jisna Jayaraj	1	2	3	4	5	6	7	8	9	10	11	A	A	12	13															
16	13CS047	Kavya	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
17	13CS048	Kusuma J	A	1	2	3	4	5	6	7	8	9	A	10	11	12	13															
18	13CS049	Lathishma Suvarna	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
19	13CS050	Lavanya R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
20	13CS051	M Raksha Kudva	1	2	3	4	5	6	7	8	9	10	11	12	13	A	A															
21	13CS052	M Sangeetha Jain	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
22	13CS053	Maheshakumar Shetty	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15															
23	13CS054	Manoj E	A	A	A	A	A	A	A	A	A	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	A	A	16	17	18
24																																
25																																
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27																																
28																																
29																																
30																																
Staff Initials			PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK	PK

PK

PK

Class : V A

Subject : System Software

No. of Classes held :

		Date / Month	1	2
Sl. No.	U.S.N.	Name	1	2
1	13CS029	Deepika B Shetty	A	1
2	13CS030	Deliprasad S Shetty	1	2
3	13CS031	Dileep Kumar	1	2
4	13CS032	Drishya S Babu	1	2
5	13CS034	Gaurav Suvarna	1	2
6	13CS035	Goutami P Hosur	1	2
7	13CS036	Gourava	1	2
8	13CS037	Gourav Hippasagi	A	1
9	13CS038	Hasmita B V	1	2
10	13CS039	Hellen Treasa John	1	2
11	13CS040	Hitesh Harikrishnan	A	1
12	13CS041	Impara M S	A	1
13	13CS043	Jesin Jobe	A	1
14	13CS044	Jisha Emmanuel	A	1
15	13CS045	Jisna Jayaraj	1	2
16	13CS047	Kavya	1	2
17	13CS048	Kusuma J	A	1
18	13CS049	Lathishma Suvarna	1	2
19	13CS050	Lavanya R	1	2
20	13CS051	M Rakesha Kudva	1	2
21	13CS052	M Sangeetha Jain	1	2
22	13CS053	Maheshkumar Shetty	1	2
23	13CS054	Manoj . E	A	A
24				
25				
26				
27				
28				
29				
30				
Staff Initials				

21	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60		
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21	30	31	32	33	34																											

