

B.Sc. (Hons.) Computer Science / III Sem.

B

Paper 302 : SYSTEM SOFTWARE

(Admissions of 2001 and onwards)

Time : 3 hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt all questions.

Parts of a question must be attempted together.

SECTION 1 (35 marks)		
1.	Give the output of the following commands(Any four): a) set alpha beta gamma; echo \$1;shift;echo \$1; b) mv * ../bin c) chmod 440 myfile.sh d) nohup myfile.sh & e) tr a-z A-Z < myfile.sh	12
2.	Differentiate between the following(Any two): a) comm file1 file 2 and cmp file1 file2 b) ln file3 file4 and ln -s file3 file4 c) who sort and who >sort	6
3.	Write commands or shell scripts for the following : a) Concatenate files filex and filey and append the output to file filez b) Using pipe commands store the number of logged in users to the file logfile and output on the screen the logged in users details	2 3
4.	a) Write an AWK script that may be used to implement the word count command, i.e, it should print the number of characters, words and lines in a file b) Write a script using sed to split the contents of an input file into one word per line.	3 2
5.	Write a shell script to input a number from the commandline and perform the following: a) If the commandline arg is not provided show an error and exit b) If the number is even, show the message : "is even" c) If the number is odd, store it in a file, myfile	5
6.	Give commands for the following: i) adding a file to an SCCS system ii) extracting a file from the SCCS system for editing OR What does the dependency file in a MAKE system contain? Give an example.	2

SECTION 2 (22 Marks)																																																									
7	<p>Give the output of the following LEX generator program:</p> <pre> digit [0-9] letter [A-Za-z] %{ int account, bcount; }% %% {digit}({digit})* account++; {letter}({letter} {digit})* bcount++; %% int main(void) { yylex(); printf(" %d\t%d", account,bcount); return 0; } </pre> <p>The input file has data:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> 24 and 35 is 59 11 added to the sum gives 70 Should it not give80 </div>	4																																																							
8	<p>a) With the help of diagrams explain the dynamic linking procedure.</p> <p>b) Describe the following:</p> <ul style="list-style-type: none"> i) Bit mask FEC ii) Modification record M,000014,05+COPY 	4 2 2																																																							
9	<p>Assemble the following SIC assembly code into equivalent binary code. The instruction size is 3 bytes, opcode is 8 bits, indexed addressing takes 1 bit and address takes 15 bits.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr><td>SUM</td><td>START</td><td>4000</td></tr> <tr><td>FIRST</td><td>LDX</td><td>ZERO</td></tr> <tr><td></td><td>LDA</td><td>ZERO</td></tr> <tr><td>LOOP</td><td>ADD</td><td>TABLE,X</td></tr> <tr><td></td><td>TIX</td><td>COUNT</td></tr> <tr><td></td><td>JLT</td><td>LOOP</td></tr> <tr><td></td><td>STA</td><td>TOTAL</td></tr> <tr><td></td><td>RSUB</td><td></td></tr> <tr><td>TABLE</td><td>RESW</td><td>2000</td></tr> <tr><td>COUNT</td><td>RESW</td><td>1</td></tr> <tr><td>ZERO</td><td>WORD</td><td>0</td></tr> <tr><td>TOTAL</td><td>RESW</td><td>1</td></tr> <tr><td></td><td>END</td><td>FIRST</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <th>Mnemonic</th> <th>LDX</th> <th>LDA</th> <th>ADD</th> <th>TIX</th> <th>JLT</th> <th>STA</th> <th>RSUB</th> </tr> <tr> <td>Opcode</td> <td>04</td> <td>00</td> <td>18</td> <td>2C</td> <td>38</td> <td>0C</td> <td>4C</td> </tr> </table>	SUM	START	4000	FIRST	LDX	ZERO		LDA	ZERO	LOOP	ADD	TABLE,X		TIX	COUNT		JLT	LOOP		STA	TOTAL		RSUB		TABLE	RESW	2000	COUNT	RESW	1	ZERO	WORD	0	TOTAL	RESW	1		END	FIRST	Mnemonic	LDX	LDA	ADD	TIX	JLT	STA	RSUB	Opcode	04	00	18	2C	38	0C	4C	6
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10	Instructions in one control section may need to refer to data or instructions in another control section. Which two assembler directives are used to achieve this. Discuss the role of each.	2+2
	SECTION 3(18 Marks)	
11	Write an XML file with the root tag library. Design 3 book tags within the root, each with an attribute isbn. Each book tag has child elements name, author and publisher.	6
12	Give the output of the following perl program <pre>@array=("algo","ss","algebra","stats","ob"); print("the array contains: @array\n"); print("the array contains: ",@array,"\n"); print("\$array[1]");</pre>	3
13	<p>a) Write a javascript program to greet the user according to the time of the day,"i.e. Good morning, good afternoon or good evening". Use the date object.</p> <p>b) Write a javascript function to input 3X3 array of numbers. Declare the array appropriately.</p> <p>c) Write a javascript function to break an input string into words, and mention the number of words of length 5.</p>	<p>3</p> <p>3</p> <p>3</p>