Your Roll No...................

6359

B.Sc. (Hons.) – III Sem. / II Yr. / NS   H
COMPUTER SCIENCE
Paper 302 – SYSTEM SOFTWARES
(New Course)
(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.)

All questions are compulsory.

Answer questions belonging to a Section together.

Section I

1. (a) Give commands to :   4

   (i) List all files whose name start with vowel.

   (ii) Put a tab at the beginning of each line that has at least one character on it (using sed).

   (iii) Find users who are currently logged in.

   (iv) List subdirectory names.

   (b) What would the following commands do :   3

   (i) echo [a-m]*

   (ii) cp / home/jenny/memo •

   (iii) (sleep 5; date) & date

P.T.O.

2. Explain the significance of 2 files /dev/null and /dev/tty (with examples). 3

3. (a) Write a shell program that folds lines of text beyond 30 characters. 5

   (b) Write a script that behaves both in interactive and non-interactive mode. When no arguments are supplied it picks up each C program from the current directory and lists the first 10 lines. It then prompts for detection of the file. If the user supplies arguments with the script, then it works on those files only. 4

4. (a) Differentiate between the following : 6

   (i) ls * and echo '*'

   (ii) who \sort and who > sort

   (iii) cmp and comm.

   (b) What will be the effect of the following UNIX command :

   chmod 777 aaa . C

   chmod u + w g-w abcd. out 2

5. List 4 facilities provided by SCCS. 2

Section II

6. With the help of the following information convert the given SIC/XE assembly code into its equivalent object code.

OP code	n	i	x	b	p	e	address
6	1	1	1	1	1	1	12

$\frac{24}{3}$

SUM	START	0
FIRST	LDX	# 0
	LDA	# 0
	+ LDB	# TABLE 2
	BASE	TABLE
LOOP	ADD	TABLE, X
	ADD	TABLE 2, X
	TIX	COUNT
	JLT	LOOP
	+ STA	TOTAL
	RSUB	
COUNT	RESW	1

P.T.O.

TABLE	RESW	2000
TABLE2	RESW	2000
TOTAL	RESW	1
	END	FIRST

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

5

7. (a) How could an assembler that allows external references avoid the need for an EXTDEF statement ? What would be the advantages and disadvantages of doing this ?   3

   (b) How the loader itself is loaded into the memory ? Explain with reference to Bootstrap loader.   3

(c) What is the difference between a linkage editor and a linking loader ?   2

8. (a) Explain the terms Lex and Yacc. Describe the role of Lexical analyser and parser generator during compilation.   4

(b) According to the grammar given below :   4

list → list + digit

list → list − digit

list → digit

digit → 0/1/2/3/4/5/6/7/8/9.

Draw the parse tree for the exp 9 − 5 + 2.

Discuss whether the parse tree so generated is ambiguous or unambiguous.

Section III

9. (a) Write a Javascript function to determine and return the largest of the three floating point values. The 3 floating point values are to be input by the uses via prompt dialog boxes.   3

P.T.O.

(b)   Write a script that inputs several lines of text and a search character and uses string method index OF to determine the no. of occurrences of the character in the text.   3

10. (a)   What is the difference between HTML and XHL ? Explain.   3

(b)   What is DTD of XML document ? Write a valid DTD for the following XML document.

```
<article>

        <title> Java Programming </title>

        <date> Oct. 4, 2007 </date>

        <author>

                <fname> Herbert </fname>

                <lname> <shieldt </lname>

        </author>

        <summary> Nice language. </summary>

        <content> once you have learnt JAVA, the
        OOPS concept helps you a lot to program
        the real would.

        </content>

</article>
```
                    6

11. (a) How can a Perl program determine the type of browser a web client is using ?   1

   (b) Write a Perl program that tests whether an email address is input correctly. A valid email address contains a series of characters followed by the @ character and a domain name.   5

   (c) What information do the CGI environment variables contain ?   2

   (d) What are cookies ? How are they used by the server and web browser ?   2