

Total number of printed pages-6

53 (CS 501) SYPR

2017

SYSTEM PROGRAMMING

Paper : CS 501

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions.

1. (a) What is language processor and describe the significance of semantic gap with diagram ?
(b) Explain the different system softwares for run-time environment.
(c) Briefly describe the bootstrapping with the example. 8+8+4

2. (a) What is the disadvantage in absolute loader and to overcome this problem which kind of other loader scheme is used ?

Contd.

- (b) Explain the linking loader with the diagram. Describe the use of linking loader and linkage editor.
- (c) Define Macro Processor with a diagram and also define the copy code and parameter substitution expansion with examples. 4+8+8
3. (a) Describe the compiler (6 passes) with a diagram and also mention the list of data structures of compiler.
- (b) Draw the diagram of intermediate representation of compiler (Front end and Back end). 14+6
4. (a) Draw a UNIX File system tree in hierarchical structure form with descriptions.
- (b) State True **or** False :
- (i) UNIX is an example of single user operating system.
- (ii) Memory management is a function of an OS.
- (iii) Efficiency of the UNIX system decreases as the number of terminal decreases.

- (iv) UNIX is written in C language.
- (v) Shell forms the core of the UNIX operating system.
- (vi) Shell forms the interface between the kernel and user.
- (vii) The Head command is used as a complement to the tail command.
- (viii) A directory can be created only if read permission exists.
- (ix) We can use -r option to interact with the rm command.
- (x) UNIX commands can perform multiple tasks using a single command. 10+10

5. (a) Match the following given UNIX commands and their operation in terminal/shell :

Pg filter	To display the output of a command on the screen in next page by pressing "Space Bar"
More filter	To display the output of a command on the screen page by page

Cut Command	One particular field/ character is extracted from a file or output of any command
Paste Command	The output of particular command can be used later but store in long pipelines Merge
Tee Command	The contents of two files into a single file
Tr Command	To translate the characters taken from Std I/P or a file to upper case/lower case.

(b) Fill in the blanks with the appropriate words in the given options :

(i) To exit vi and save changes _____.
(:w/:wq)

(ii) To exit vi and without save changes _____.
(:q/:q!)

(iii) To enter vi command mode, press _____.
(esc/enter)

- (iv) Low level language is _____.
(Assembly / FORTRAN)
- (v) High level language is _____.
(Assembly/PASCAL)
- (vi) Compilers are used for _____.
(Translation/Interpretation)
- (vii) If the value of left operand is less than or equal to the value of right operand, the Relation operator is _____.
(-le/-ne)
- (viii) Deletes the character under the cursor location by pressing _____.
(x/D)
- (ix) The Tail command is used as a complement to the _____ command.
(Head / more)
- (x) The _____ command is used to display the lines with single occurrences. (uniq-d/uniq-u/lis-d)

(c) Write short notes on : **(any two)**

- (i) Assembler's data structures
- (ii) Literals
- (iii) Macros Data structures
- (iv) Two pass assembler. 6+10+4

6. Differentiate between : **(any four)** 4×5

- (i) Top-down and Bottom-up passing
- (ii) Positional and Keyword argument
- (iii) NDFA and DFA
- (iv) Declare constant and Declare storage
- (v) MOVER and MOVEM
- (vi) Syntax analysis and Semantic analysis
(Compiler related)