

MCA - 502

MCA. V Semester

Examination, December 2015

Unix and Shell Programming

Time : Three Hours

Maximum Marks : 70

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
- ii) All parts of each question are to be attempted at one place.
- iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
- iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) What are the features of UNIX operating system?
- b) What are interrupts and exceptions?
- c) What are the various fields of buffer header? Explain.
- d) Explain various scenarios for retrieval of buffer by taking suitable examples.

OR

Explain Architecture of the unix operating system. Draw block diagram of system kernel.

Unit - II

2. a) What are disk inodes?

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- b) What is mounting of file system?
- c) What information does super block contains?
- d) How inode is assigned to a new file? Explain. Also write its algorithm.

OR

What are file system call's? What is their relation to other algorithms. Also write algorithm for opening a file.

Unit - III

- a) Explain the layout of system memory.
- b) What is system call interface?
- c) What are the three mechanisms of UNIX system V IPC package?
- d) Explain sleep process creation by taking suitable example.

OR

Explain manipulation of process address space. What are regions? And how locking, unlocking and allocating a region is done?

Unit - IV

- a) How is shell script executed? Write steps.
- b) Explain the use of following commands
 - i) Set ii) Shift
- c) What is sed? Compare sed with grep.
- d) Write a shell script that receives any number of file names as arguments, checks if every argument supplied is a file or a directory and reports accordingly. Whenever the argument is a file, the number of lines on it is also reported.

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OR

Explain the use of following commands. Also write their syntax.

- i) Cut ii) Date
- iii) Who iv) Head
- v) Tail

Unit - V

- 5. a) Explain the structure of perl script.
- b) What are associative arrays? How will you obtain only keys of an associative arrays in Perl.
- c) What are built in variables in Awk. Write built in variable and their meaning.
- d) Write an awk-script that reads a file which has three fields- NAME, DESIGNATION and BASIC-SALARY and calculates GROSS-SALARY according to the following rule:- If basic-salary is greater then 10000; the DA is 45% of basic and HRA is 15% of basic otherwise DA is 50% of basic and HRA is 20% of basic. The gross-salary is sum of basic-salary DA and HRA.

OR

Discuss the features of LINUX. Its structure and various flavours of LINUX.
