

Time: 3 Hours

DECEMBER 2012

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions, answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

- a. Which of these is not a common UNIX shell discussed in class?

(A) bash (C) fresh	(B) sh (D) ksh
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- b. In ksh, what is the difference between the expressions VAR and \$VAR?

(A) VAR refers to a variable name and \$VAR to its value (B) VAR refers to a variable value and \$VAR to its name (C) VAR refers to an integer variable and \$VAR to a string variable (D) Both expressions refer to the same thing
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- c. Which of these expressions shows the proper way to add the directory /usr/bin to your path

(A) PATH+=/usr/bin (C) \$PATH:/usr/bin	(B) PATH=/usr/bin (D) PATH=\$PATH:/usr/bin
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- d. What is effect of the command alias up2 “cd ..”?

(A) typing “cd ..” at a shell prompt causes the shell to print “up2” (B) typing “cd ..” at a shell prompt causes the shell to print “up2” (C) you immediately go up two levels in the directory tree and a new alias is created (D) an error message is printed
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- e. Which of the following is not a benefit of the fact that many UNIX commands operate on plain ASCII text files?
- (A) the same file can be used by many programs
 (B) output to the terminal and to files can be done in the same way
 (C) most current UNIX installations have a graphical user interface
 (D) these commands can be used as filters for the output of other commands
- f. What is the default datatype of variables in ksh shell scripts?
- | | |
|---------------|--------------------|
| (A) integer | (B) floating point |
| (C) character | (D) string |
- g. Which of these situations would cause an error message to be printed after typing the command “my_script” on the command line, assuming that my_script is a ksh script ?
- (A) my_script does not have execute permission set
 (B) the current working directory is not in the PATH
 (C) both (A) and (B)
 (D) neither (A) and (B)
- h. What is the meaning of the expression \${sports[*]} in a ksh script?
- (A) all of the elements of the array sports
 (B) the number of elements in the array sports
 (C) the first element in the array sports
 (D) I love sports!
- i. In a ksh script, how does one indicate the beginning and end of a block of statements in a while loop?
- | | |
|--------------------------|----------------------|
| (A) with { and } | (B) with [and] |
| (C) with while and elihw | (D) with do and done |
- j. What is the default list upon which a for loop operates in a ksh script (i.e. a script contains “for x” rather than “for x in y”) ?
- (A) the list of files in the current working directory
 (B) the list of currently running processes
 (C) the list of arguments to the script
 (D) the list 1, 2, 3, 4, ...

**Answer any FIVE Questions out of EIGHT Questions.
 Each question carries 16 marks.**

- Q.2** a. What is an operating system ?Discuss UNIX Architecture. (8)

- b. Explain error handling in UNIX system function. Write a function to show how can errors be handled. (8)
- Q.3** a. Explain the functions used in UNIX to change file access permission. (8)
b. What is the purpose of following functions? Explain briefly using example. mkdir, rmdir, chdir, fchdir (8)
- Q.4** a. Discuss Buffering in detail. What is the goal of buffering? Explain three types of buffering. (8)
b. Explain standard I/O Efficiency. (4)
c. How can encrypted password be obtained from a shadow file? (4)
- Q.5** a. Explain fork and vfork function in detail giving syntax of both the functions. (8)
b. Write a note on exit functions. In how many ways a process can terminate? (8)
- Q.6** a. Explain different types of Terminal logins. (8)
b. Write about characteristics of sessions and process groups. (8)
- Q.7** Write brief notes on the following:
(i) Kill and raise function (8)
(ii) Alarm and pause function (8)
- Q.8** a. What is daemon processes? Explain its Characteristics. (8)
b. Write about four functions that provide line control capability for terminal devices. (8)
- Q.9** How is Semaphores implemented? Explain with example. (16)