(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 9 2 7

Exam. Code : 0 0 3 0

Bachelor of Computer Applications 4th Semester

1046

UNDERSTANDING UNIX

Paper : BCA-403

Time Allowed : Three Hours] **[Maximum Marks : 90**

Note :– Attempt **FIVE** questions in all, including Q. No. **9** which is compulsory and taking **one** each from Section–A to Section–D.

SECTION—A

1. (a) What is an Operating System (OS) ? Describe the broad functions provided by an OS.

   (b) Draw the state diagram of a process from its creation to termination, including all transitions and briefly elaborate every state and every transition. 9,9

2. Compare and contrast :

   (a) UNIX OS and WINDOWS OS

   (b) Time-Sharing System and Real-Time Systems. 9,9

SECTION—B

3. (a) Explain any five job/process control facilities in UNIX and write the commands for each facility.

(b) What is the purpose of having pipes in UNIX ? Design a UNIX pipe that displays lines from 26 to 50 in a data file having 100 lines.

(c) List any 4 symbols for I/O redirection within the UNIX environment. For each symbol, briefly describe its purpose and provide an example of its use. 6,6,6

4. (a) Give an account of various file handling and directory handling commands in UNIX with examples.

(b) What is a Regular Expression ? Give regular expressions that could be used with *grep* command that would match the lines described below :

(i) Lines containing the string bca403, but with any number of the letters capitalized (i.e., BCA403, bCa 374, etc.)

(ii) Lines not containing any lower-case English vowels. (The vowels are the letters a, e, i, o and u).

(c) Classify some important features of *vi* editor in UNIX to create and modify a file. 6,6,6

SECTION—C

5. List at least **FOUR** functional activities of a UNIX System Administrator. Explain the facilities in UNIX for handling these **FOUR** activities by taking suitable examples. Discuss the role of *tar* facility for system administration with examples. 18

6. Explain the following in the context of administering UNIX systems :

(a) Starting and shutting down the UNIX system

(b) Adding and removing user accounts

(c) Managing hard disk space. 6,6,6

SECTION—D

7. (a) What is a shell script ? Explain the procedure to create and execute a "shell script".

   (b) Write a UNIX shell script to read the first term a, the ratio r and number n and calculate the result of the series :

   $a + ar + ar^2 + ... + ar^{n-1} + ar^n$. 6,12

8. Write short notes on the following with examples :

   (a) AWK pattern scanning and processing language

   (b) Network Troubleshooting commands in UNIX. 9,9

SECTION—E

(Compulsory Question)

9. (a) What is a Process ? How is it different from a Computer Program ?

   (b) What is the differences between A and B A | B in UNIX, where A and B are two binary executables ?

   (c) What is the purpose of UNIX Kernel ?

   (d) Explain what the UNIX command *chmod* does.

   (e) Name some UNIX commands for inter-user communication.

   (f) How do you recover from system crash in UNIX ?

   (g) How do you change password in UNIX ?

   (h) What is full form of AWK ?

   (i) What is the length of IPv6 address ? 9×2=18