



Name : .....  
Roll No. : .....  
Invigilator's Signature : .....

**CS/BCA/SEM-5/BCAE-501 A/2012-13**

**2012**

**ADVANCE UNIX AND SHELL PROGRAMMING**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following :

10 × 1 = 10

i) Which of the following system call verifies the integrity of a file system ?

- a) Tee
- b) Fcsk
- c) Task
- d) None of these.

ii) What \$ expr 10 - 20 returns

- a) 10
- b) -10
- c) Syntax error
- d) None of these.

iii) What \$umask 077 returns

- a) 077
- b) Umask 077
- c) Syntax error
- d) None of these.



- iv) Bind ( ) system call is associated with
  - a) Stream
  - b) Semaphore
  - c) Message
  - d) None of these.
- v) Which of the following returns file descriptor
  - a) Fork
  - b) Pool
  - c) Tee
  - d) None of these.
- vi) Chroot ( ) system call returns
  - a) Change file
  - b) Open file
  - c) Both (a) & (b)
  - d) None of these.
- vii) To control new window and communicating with it we use
  - a) Fork
  - b) Mpx
  - c) Mpx forks
  - d) None of these.
- viii) For interprocess communication we use
  - a) Pipes
  - b) Signals
  - c) Both (a) & (b)
  - d) None of these.
- ix) Information of a file stored in,
  - a) Pipes
  - b) File table
  - c) I-node
  - d) Memory.
- x) When kernel releases an inode it actually
  - a) Increments the in-core count
  - b) Decrements the in-core count
  - c) Increments the disk core count
  - d) Decrements the disk core count.



**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. Name three mechanisms which are adopted for interprocess communication in UNIX. List down the common features they share.  $2 + 3$
3. How system call is related with mounting and unmounting a file system. Differentiate su and su-brian.  $2 + 3$
4. Define context switching and demand paging.  $2 + 3$
5. What is an u-area ? Explain its fields.  $2 + 3$
6. Draw and explain process state transition diagram in UNIX.  $2 + 3$

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Write a short note on memory mapped I/O. Write the advantages of swapping and demand paging.  $4 + 3$   
b) What is a signal ? Write down the classifications of signal and explain how they are handled by kernel.  $1 + 3 + 4$
8. a) Describe scheduling process.  $4$   
b) Explain how the semaphores are created.  $4$   
c) What is socket ? Write the usage of it.  $1 + 2$   
d) What are projection faults ? Why it happens.  $2 + 2$



9. a) Draw and explain the structure of a buffer pool. 5  
b) Write down the scenarios for retrieval of a buffer. 5  
c) Write the algorithm for buffer allocation. 5
10. a) Explain open and close system calls. 3 + 2  
b) Write the advantages and disadvantages of the buffer cache. 4  
c) Explain Link and Unlink system call. 3 + 3
11. Write short notes on any *three* of the following : 3 × 5 = 15  
a) Inter process Communication.  
b) Algorithm on reading and writing on disk block  
c) Super Block  
d) Open system call  
e) Stream.
-