

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17



**MAULANA ABUL KALAM AZAD UNIVERSITY OF
TECHNOLOGY, WEST BENGAL**

Paper Code : MCA-302

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 any *ten* of the
following : 10 × 1 = 10

i) What is the binary representation of the
permission ?

~~rwxf-xrw-~~

- | | |
|--------|---------|
| a) 656 | b) 424 |
| c) 756 | d) 746. |

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[Turn over

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17

ii) To quit without saving current work in vi editor you need to use

- a) :q!
- b) :q
- c) :wq
- d) :wx

iii) To command `rm-r tux` will

- a) delete the file tux from current directory
- b) delete all the files from directory tux
- c) recursively delete the directory tux and all its subdirectory
- d) none of these.

iv) To copy an entire directory structure, we need

- a) `cp -s olddir newdir`
- b) `cp -d olddir newdir`
- c) `cp -o olddir newdir`
- d) `cp -r olddir newdir.`

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17

v) Unix allows the use of more than one command in one line by specifying which of the following symbols among the commands ?

- a) :
- b) ;
- c) |
- d) >

vi) What does the redirection symbol "\$>\$" do ?

- a) Redirects standard output
- b) Redirects standard input
- c) Adds output to the end of the file
- d) None of these.

vii) The available disk space can be determined under UNIX by using the command

- a) dir
- b) du
- c) df
- d) file

viii) The & command is used to

- a) make the job run faster
- b) run it in the background
- c) stop a job
- d) abort the process.

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17

```
ix) main()  
{  
    fork(); fork(); fork(); fork();  
    printf("Hello");  
}
```

How many 'hello' will be printed ?

- a) 4
 - b) 14
 - c) 16
 - d) None of these.
- x) The shell parameter \$! represents
- a) name of executed command
 - b) PID of current shell
 - c) exit status of the last command
 - d) PID of last background job.
- xi) Which of the following processes has the PID 1 ?
- a) Kernel
 - b) Init
 - c) Unix
 - d) Shell.
- xii) All user's information stored in the file under /etc directory is
- a) shadow
 - b) passwd
 - c) crontab
 - d) grub.

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17

GROUP - B

(Short Answer Type Questions)

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

2. What are the three modes of operation of vi ? Explain each of them. Which one is the default mode of operation ? 4 + 1
3. Describe 'Link' and 'Symbolic Link' with example. Which is default link of a directory ? 4 + 1
4. What is sticky bit ? What is filter ? Give example. What is the difference between > and >> ? 1 + 1 + 3
5. Define semaphore. What are the components of semaphore in Unix operating system ? 2 + 3
6. Write a shell function to check whether a given number is prime or not. Using the function write a Shell script to generate prime numbers between 1 and 100. 3 + 2

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17

GROUP - C

(Long Answer Type Questions)

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

7. a) How do you distinguish between file and directories in Unix ? 2
- b) What do you understand by 'root' directory ? 2
- c) What is *i*-node ? Explain different attributes of *i*-node in UNIX. 6
- d) Write a shell script to check the type of a file. The file name should be given by the user. 5
8. a) Briefly describe the internal architecture of Unix Operating System. 6
- b) Explain different attributes of *i*-node in Unix. 4
- c) Write a shell script that will check if a particular user is logged in or not. If logged in, then send him a message. 5

CS/MCA/ODD SEM/SEM-3/MCA-302/2016-17

9. a) Explain the Booting Procedure of Unix operating system. 5
- b) What are 'fork' and 'exec' system calls meant for ? How are they different ? 5
- c) What are the responsibilities of a system administrator ? Explain each of them. 5
10. a) What is loop back address ? What is the need for this ? 4
- b) What do you mean by Connection oriented and Connection-less protocol ? Compare between these two. 6
- c) Write a shell script to check whether a file is readable, writable or executable. 5
11. Write short notes on any *three* of the following : 3 × 5
- a) Unix Run Level
 - b) IPC
 - c) Regular Expression
 - d) Swap Space
 - e) Vi Editor.
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