

Operating System & Unix.

COPYRIGHT RESERVED Voc(H-2) — BCA (7)

2017

Time : 3 hours

Full Marks : 60

Pass Marks : 27

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

The figures in the margin indicate full marks.

*Answer from **all** the Sections as directed.*

Section – A

Answer all questions.

1. Fill in the blanks : 1×8 = 8

(a) A software interrupt is also known as

_____.

(b) _____ is a memory management scheme that permits physical address space of a process to be non-contiguous.

(c) In a _____, processes never finish executing and the system resources are tied up preventing other jobs from starting.

WQ – 26/2

(Turn over)

- (d) _____ acts as an intermediary between the User and Kernel.
- (e) To return to command mode in vi editor from the editing mode, _____ key has to be pressed.
- (f) The value of a variable in UNIX can be displayed by giving _____ Command.
- (g) For a comment entry in shell script, _____ character is used.
- (h) For mathematical computations and string manipulation, _____ command is used in UNIX script.

2. State whether the following statements are 'True' or 'False' :

$$1 \times 8 = 8$$

- (a) Virtual memory is a technique that allows the execution of processes that may not be completely in the memory.
- (b) In pre-emptive scheduling, once the CPU is allocated, the process keeps the CPU till it terminates or switches to the waiting state.
- (c) We can search a pattern in a file using grep command.

- (d) CMP command is used for compressing two files.
- (e) Long-term scheduler is also called job scheduling.
- (f) mv command is used to renaming file.
- (g) The amount of work completed in a unit of time is called throughput.
- (h) Paging is a scheduling algorithm.

3. Choose the most appropriate option : $1 \times 8 = 8$

- (a) To access the services of operating system, the interface is provided by the :
 - (i) System calls
 - (ii) Library
 - (iii) API
 - (iv) Assembly instructions
- (b) Compiler designing phases :
 - (i) Lexical analysis
 - (ii) Semantic analysis
 - (iii) Syntax analysis
 - (iv) All of the above

(c) The command head-13 will display :

- (i) Last 13 lines
- (ii) 13th line
- (iii) First 13 lines
- (iv) None of the above

(d) Logical address is generated by :

- (i) CPU
- (ii) Memory
- (iii) Page map table
- (iv) None of the above

(e) The most liberal directory permission is :

- (i) 777
- (ii) 666
- (iii) 888
- (iv) None of the above

(f) User passwords, in Unix System are stored in :

- (i) /etc/passwd
- (ii) /etc/inittab

- (iii) /etc/user
 - (iv) None of the above
- (g) A ready queue is :
- (i) An inverted list
 - (ii) A circular linked list
 - (iii) A linked list
 - (iv) None of the above
- (h) Memory relocation avoids :
- (i) Internal fragmentation
 - (ii) External fragmentation
 - (iii) Both (i) and (ii)
 - (iv) None of the above

Section – B

4. Answer any **four** questions of the following :

3×4 = 12

(a) Write short notes on the following :

- (i) Mail command
- (ii) Page map table
- (iii) Write command
- (iv) Process control block

- (b) Explain round-robin scheduling with suitable example.
- (c) Differentiate time sharing and real time system.
- (d) Write a shell script to find the factorial of a given number.
- (e) Explain the essential features of an operating system.
- (f) What is Kernel in operating system ? Explain.

Section – C

5. Answer any four questions of the following :

6×4 = 24

- (a) Write a shell script to enter a string and check whether the entered string is null or not. If it is null, then appropriate message should be displayed and if it is not null, the length of the string should be displayed. This process should be repeated five times.
- (b) What is a deadlock ? Explain it with all its necessary conditions.
- (c) Explain the following :
 - (i) Multiprogramming

- (ii) Spooling
- (iii) Buffering
- (d) Write a shell program to reverse a string.
- (e) Discuss the Unix system architecture.
- (f) Write Unix commands for the following :
 - (i) Rename a file
 - (ii) Join two files
 - (iii) List all users logged
 - (iv) Display last 5 lines of a file
 - (v) Find user name and terminal type
 - (vi) Change file permission

