

Total No. of Questions : 4]

SEAT No. :

PE54

[6579]-355

[Total No. of Pages : 2

**T.E. (Information Technology) (Insem)
OPERATING SYSTEMS
(2019 Pattern) (Semester - I) (314442)**

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4.
- 2) Assume suitable data if necessary.
- 3) Neat diagrams must be drawn whenever necessary.
- 4) Figure to the right indicate full marks.

- Q1)** a) Explain the concept of virtual machine with its benefits. [5]
- b) Differentiate between Monolithic and Microkernel architecture. [5]
- c) State and explain different services provided by an operating system. [5]

OR

- Q2)** a) Write a shell program to reverse the digits of seven digit integer. [5]
- b) Explain following shell commands. [5]
- i) grep
 - ii) cvt
 - iii) read
 - iv) echo
 - v) cat
- c) Explain Symmetric Multiprocessing (SMP) with its benefits over uniprocessor architecture. [5]

P.T.O.

- Q3) a)** Consider the following set of processes with length of CPU burst time given in milliseconds. [8]

Process	Arrival Time	Burst Time
P ₁	0	9
P ₂	2	20
P ₃	4	2
P ₄	7	14
P ₅	8	4

Apply FCFS, SJF (preemptive). Calculate Average waiting time and Average turnaround time. Draw Gantt Chart.

- b) Draw and explain the five state process diagram. [7]

OR

- Q4) a)** Explain the concept of process control Block. [5]
b) What is thread? Explain the difference between single-threaded process and multithreaded process. [6]
c) Differentiate between User-level threads and Kernel-Level threads. [4]

