B.Sc. (I. T.) Sem. - III (CBCS - 2015 Course) : SUMMER - 2019

SUBJECT: OPERATING SYSTEMS

Day: Thursday
Date: 09/05/2019

S-2019-1276

Time: 02.30 p.m. to 05.30 p.m.
Max. Marks: 60

N.B.:

1) Answer **ANY SIX** questions.
2) Figures to the right indicate **FULL** marks.
3) Draw neat diagrams **WHEREVER** necessary.

Q.1 **a)** Explain different types of in an operating system. **(04)**

b) What is an operating system? Describe the different types of services provided by an operating system. **(06)**

Q.2 **a)** How PCB and RSA get involved during process execution? **(04)**

b) Consider the following snapshot of the system. **(06)**

Jobs	Arrival Time	CPU Burst Time
1	0	7
2	1	2
3	2	5
4	3	4

Compute average turnaround time and average wait time using Round Robin Algorithm with time quantam3.

Q.3 **a)** What is the main difference between deadlock and starvation? **(04)**

b) Consider the following reference string: **(06)**
4,3,2,1,4,3,5,4,3,2,1,5.

Q.4 **a)** How is the protection for memory provided? **(04)**

b) What is a System call? Explain the various types of system calls provided by an operating system. **(06)**

Q.5 **a)** What are the differences between Paging and Segmentation? **(04)**

b) What is scheduler? What are the different types of scheduler? Explain any two in detail. **(06)**

Q.6 Consider the following snapshots of a system A,B,C and D are resource types: **(10)**

	Allocation			
	A	B	C	D
	0	0	1	2
	1	0	0	0
	1	3	5	4
	0	6	3	2
	0	0	7	4

Max			
A	B	C	D
0	0	1	2
1	7	5	0
2	3	5	6
0	6	5	2
0	6	5	6

Available			
A	B	C	D
1	5	2	0

Answer the following:

i) What are contents of a need array.

ii) If the system is in safe state, give the safe sequence.

iii) If a request from P1 arrives for (0,4,2,0) can it be grated immediately.

Q.7 **a)** What is Fragmentation? Explain different types of fragmentation? **(04)**

b) What are different memory allocation algorithms? Explain any two of them in detail with examples. **(06)**

Q.8 **a)** Describe inter process communication in detail. **(04)**

b) Explain different types of job schedulers with a neat diagram. **(06)**

Q.9 Write short notes on **(ANY TWO):** **(10)**

a) Process Scheduling

b) Memory Management

c) Deadlock

* * * * *