7. For the following set of processes with specific values : 7½

Process	Arrival Time (ms)	Next CPU Burst (ms)	Priority
P_1	0	14	7
P_2	1	6	1
P_3	3	2	3
P_4	5	7	2

Determine the Average Waiting Time and Average Turnaround Time using the following scheduling algorithms:

(i) Round Robin Scheduling

(ii) Shortest Job First

(iii) Shortest Remaining Time Next

Unit-IV

8. (a) Explain the mechanism of Deadlock Avoidance. Elaborate the Banker's Algorithm for avoiding deadlock   6

(b) Write Deadlock prevention method.

1.5

9. (a) Explain the Resource Allocation Graph (RAG) for detecting deadlock.   4

(b) Elaborate the methods of deadlock handling.   3.5

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S-754

B.Sc. (Part-II) Examination, 2015

(New Syllabus)

COMPUTER SCIENCE

Paper-I

(Operating System)

Time Allowed : Three Hours]   *[Maximum Marks : 50*

Note: Answer five questions in all. Question No. 1 is compulsory. Attempt one question from each of the four units. $2 \times 10 = 20$

1. (a) Define Operating System. Write major goals of an Operating System.

(b) List the limitations of base machine approach and serial processing.

(c) Differentiat between Multiprogramming and Multitasking systems.

(d) Discuss the utility of Daemon in relation to operating system.

(e) What is context switching? Explain basic steps involved with context switching .

(f) "Monitor is a high level tool for process synchronization". Justify the statement by giving utilities of Monitor.

(g) Elaborate the concept of SPOOLING.

(h) Write necessary conditions for deadlock to occur.

(i) Write a short note on system call utility of Operating System.

(j) Enlist the performance criterion of a schedular.

Unit-I

2. (a) Elaborate the historical evolution of operating system from bare machine approach to modern day operating system by expressing the main features and timeline. 6

(b) With the help of diagram explain the structure of operating system? 1.5

3. (a) Explain the functions of operating sys-

tem that help computer system to work efficiently and effectively? 5

(b) Describe Process Control Block (PCB). 2.5

Unit-II

4. (a) Explain the concept of virtual memory. Enlist the advantages of using virtual memory in computer system. 3.5

(b) Discuss the Page replacement technique. 4

5. (a) Discuss various file access methods by giving examples. 4

(b) Describe the concept of file along with its types. 3.5

Unit-III

6. Compare and contrast the following CPU scheduling algorithms by mentioning the strengths and limitations of each : 7.5

(i) First Come First Serve (FCFS)

(ii) Round Robin Scheduling Algorithm(RRS)

(iii) Shortest Remaining Time Next (SRTN)