 BCA (Sem-III) – Operating System (302) (Core VI)

2021

Time : 3 hours

Full Marks : 70

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

The figures in the margin indicate full marks.

Answer ***all*** *sections as directed.*

Section–A

(Compulsory)

1. Pick up the correct alternative for each of the following questions : 10×2=20

(a) What is the ready state of a process ?

(i) When process is scheduled to run after some execution

(ii) When process is unable to run until sourse task has been completed

(iii) When process is using the CPU

(iv) None of the mentioned

(b) What is a short term scheduler ?

(i) It selects which process has to be brought into the ready queue

(ii) It select which process has to be executed next and allocates CPU

(iii) It selects which process has to be removed memory from swapping

(iv) None of the mentioned

(c) Round Robin Scheduling falls under the category of :

(i) Non preemptive

(ii) Preemptive

(iii) Both (i) & (ii)

(iv) None of the above

(d) A minimum of ___ variable is/are required to be shared between processes to solve the critical section problem :

(i) One

(ii) Two

(iii) Three

(iv) Four

(e) Binding of instructions and data to memory address can be done at :

(i) Compile time

(ii) Load time

(iii) Execution time

(iv) All of the above

(f) Real time system must have :

(i) Preemptive kernels

(ii) Non preemptive kernels

(iii) Both (i) & (ii)

(iv) None of the above

(g) In Unix each process is identified by its :

(i) PCB

(ii) Device queue

(iii) Process identifies

(iv) None of the above

(h) CPU scheduling is the basis of :

(i) Multiprocessor system

(ii) Multiprogramming system

(iii) Large memory size system

(iv) None

(i) In OS which of the following is/are CPU scheduling algorithm :

(i) Priority

(ii) Round Robin

(iii) SJF

(iv) All

(j) To access the services of the OS the interface is provided by the ____.

(i) Library

(ii) System calls

(iii) Assembly instruction

(iv) All

Section–B

Answer any **four** questions : 4×5=20

2. What is throughput, turnaround time, waiting time and response time.

3. Define time sharing operating system.

4. What do you mean by context switching ?

5. Explain virtual memory and its uses.

6. What are the various layers of file system ?

7. Differentiate between internal and external fragmentation.

8. What are the various criteria for CPU scheduling ?

9. Write short notes on firewall.

Section–C

Answer any **two** questions of the following :

2×15=30

10. What is an operating system ? What is the need for an operating system ? Discuss the major function of an OS.

11. Consider the following set of process with the length of CPU burst time given in millisecond

Process	Burst time (msec)	Arrival time (m Sec)
P_1	24	0
P_2	7	3
P_3	6	5
P_4	10	10

Draw Gantt chart for FCFS, SJF and RR (quantum-4) scheduling algorithms. Calculate the average waiting time and turn around time for each of the above mentioned algorithms.

12. What are the various threats to security of a system ? Elaborate in details the different mechanism of protection and security.

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