Total No. of printed pages = 9

END SEMESTER/RETEST EXAMINATION – 2022

Semester : 5th (Old)

Branch : Computer

Subject Code : CO-504

OPERATING SYSTEM

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

1. *All* questions of PART–A are compulsory.
2. Answer any *five* questions from PART–B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10

   (a) Data stores temporarily in _____.

   (b) _____ is a collection of related information.

[Turn over

(c) A _____ is a command interpreter.

(d) Multi-programming is also called _____.

(e) Banker's algorithm is a deadlock _____ algorithm.

(f) The file system implementation is done through_____.

(g) In _____ scheduling, once the CPU is assigned to a process, the processor do not release until the completion of that process.

(h) Physical memory space is divided into fixed sized blocks called as _____.

(i) The UNIX operating system is made up of three parts the kernel, the _____ and the program.

(j) An OS is a _____ software.

Multiple choice questions.

2. Choose the correct options of the following : $1 \times 10 = 10$

(a) A thread is a _____.

(i) Task

(ii) Process

(iii) Program

(iv) Light weight process

(b) Which of the following is not advantage of multi-programming ?

(i) Increased throughput

(ii) Shorter response

(iii) Decreased Overhead

(iv) Abilities to be assigned

(c) Which of the following resources can cause deadlocks ?

(i) Read only files

(ii) Shared Programs

(iii) Printers

(iv) All of the above

(d) What is the purpose of Resource Allocation Graph ?

(i) To represent deadlock

(ii) To detect deadlock

(iii) To avoid deadlock

(iv) To prevent deadlock

(e) Moving process from main memory to disks is called

(i) Scheduling (ii) Cashing

(iii) Swapping (iv) Spooling

(f) In the segmentation, the main memory is divided into number of segment sizes must be

(i) Need not same

(ii) Same

(iii) Can't say

(iv) Depending on OS.

(g) Demand paging

(i) Fetches a page only when needed

(ii) Feches a page that is likely to be demanded

(iii) Pages out pages when that page form is needed it

(iv) Page out Page in large group.

(h) Spooling is most beneficial in Multi programming Environmrnt where

(i) most jobs are i/o bound

(ii) most jobs are CPU-bound

(iii) jobs are evenly divided as i/o bound and cpu-bound

(iv) There is limited primary memory and need for secondary memory.

(i) To retrieve a single record which is the best

(i) Indexed

(ii) Sequential

(iii) Indexed sequential

(iv) Hashed

(j) A Page fault occurs

(i) When a program accesses a page memory.

(ii) Is an error in specific page

(iii) Is an access to a page not currently in memory.

(iv) Is a reference to a page belonging to another page

3. Answer the following questions in brief : 1×5=5

(a) What is a process ?

(b) What is a resource ?

(c) What is batch processing ?

(d) Define throughput.

(e) Define cache memory.

PART – B

Marks – 45

4. Consider the following set of processes with the given information for : 4.5×2=9

   (a) FCFS scheduling algorithm and

   (b) SJF scheduling algorithm

Process	CPU Time / Burst Time(in ms)
P1	5
P2	10
P3	8
P4	3

   For both the algorithm :

   (i) Draw the Gantt Chart.

   (ii) Find the average waiting time.

   (iii) Find the average turn around time.

5. (a) What are the different types of Schedulers ? 3

   (b) Briefly explain the purposes of different types of schedulers. 6

6. (a) What is Multi-programming ? 3

(b) Illustrate some features of UNIX Operating System. 6

7. (a) Summarize the objectives and functions of an operating system. 3

(b) What are the four necessary and sufficient conditions behind the deadlock ? Describe. 6

8. Consider the following Page Reference String

4,7,6,1,7,6,1,2,7,2

How many Page Faults would occur for the following Page Replacement Algorithms assuming three (3) page Frames ?

(a) FIFO replacement

(b) LRU replacement

(c) Optimal replacement 3×3=9

9. How to implement a file system ? Explain in details. 9

10. (a) What is SPOOLING ? 2

(b) Mention the characteristics of dedicated, shared and virtual devices. 7