Total No. of Questions : **11**] [Total No. of Printed Pages : **3**

DPG–2293

Post-Graduate Diploma Course in Computer Application Examination, 2022

Paper – PGDCA–104

(Operating System)

Time : 3 Hours] [*Maximum Marks : 50*

Section–A **(Marks : 2 × 10 = 20)**

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section–B **(Marks : 3 × 5 = 15)**

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **3** marks.

Section–C **(Marks : 5 × 3 = 15)**

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **5** marks.

Section–A

1. (i) Define PCB.

 (ii) What is an Operating System ? Deifne its types.

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(iii)   What do you mean by Throughput ?

(iv)   Differentiate between Waiting Time and Response Time.

(v)   What do you mean by Critical Section Problem ?

(vi)   What is Prevention ?

(vii)   Why is paging used ?

(viii)   Explain the features of Linux.

(ix)   What are Shell Variables ?

(x)   What are the different file permissions in Linux ?

Section–B

2.   Define System Calls. How do system call work ? Give an example of system call.

Or

Explain threads with example.

3.   Describe MLQ scheduling algorithm with its benefits and drawbacks.

Or

Explain FCFS scheduling algorithm with suitable example.

4.   Explain Banker's Algorithm.

Or

What is Semaphores ? Write simple solution to readers-writers problem.

5.   Write the difference between physical address space and virtual address space.

Or

Write short notes on the following :

(a)   Shell and Kernel

(b)   Directory Structure.

6.   Explain the following commands with syntax and example :

(a)   pwd

(b)   man

(c)   chmod

Or

Write a shell script to print the reverse of given input number.

Section–C

7. What is Context Switch ? Explain in detail.

8. Calculate average waiting time in Shortest Job First (SJF) and priority scheduling algorithm as given scenario.

Process	Burst Time (ms)	Priority
P1	9	2
P2	2	3
P3	5	4
P4	3	1

9. Write short notes on the following :

   (a) Deadlock Prevention

   (b) Recovery from Deadlock

10. What do you understand by page replacement in virtual memory management ? Discuss the advantages and disadvantages of using FIFO, LRU and optimal page replacement techniques.

11. What is loop ? Explain finite and infinite loop with example.