PGDCA-01 MSCCS-01/ PGDCA-101/
MSCCS-101/MSCCSC-101/MCA-101

June - Examination 2026

PGDCA/MSCCS-(Previous)/MCA (Ist Year) Examination

Computer Fundamentals and System Software

Paper : PGDCA-01 MSCCS-01/ PGDCA-101/ MSCCS-101/MSCCSC-101/MCA-101

[*Time: **3** Hours*] [*Maximum Marks: **80***]

Note :- The question paper is divided into three Sections A, B and C. Write answers as per the given instructions in each section.

Section-A **8×2=16**

(Very Short Answer Type Questions)

Note :- Answer **all** questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **30** words. Each question carries **2** marks.

1. (i) What are semaphores? Give their use.
   (ii) Differentiate between Contiguous disk allocation and Non-Contiguous disk allocation.
   (iii) In binary addition, 11 + 10 = ?
   (iv) What is the purpose of system calls? Give an example.
   (v) What is a page fault? Give an example.
   (vi) What do you mean by the term Plug and Play?
   (vii) What symbol is represented by the ASCII code 100 0000?
   (viii) List any two advantages and disadvantages of Machine Language?

Section-B **4×8=32**

(Short Answer Type Questions)

Note :- Answer **any four** questions. You have to delimit your each answer maximum up to **200** words. Each question carries **8** marks.

2. Explain the fundamental differences between Application Software and System Software.
3. What is disk scheduling? What are the main objectives of disk scheduling?
4. Discuss various internal and external commands in MS-DOS with suitable examples.
5. Compare and contrast the FAT32 and NTFS file systems used in Windows operating systems.

6. Explain starvation and aging with respect to scheduling and its use with suitable examples.

7. Write a short note on -

   (a) Hard Disk (b) SSD

8. What is Virtual memory? Explain how the paging technique is used to implement virtual memory.

9. What is a mouse? How does it point on the screen? Explain its working.

Section-C **2×16=32**

(Long Answer Type Questions)

Note :- Answer **any two** questions. You have to delimit your each answer maximum up to **500** words. Each question carries **16** marks.

10. Why are NAND and NOR gates called universal logic gates? Justify your answer by showing the equivalence between the basic logic gates and their NAND and NOR logic circuits counterparts.

11. What is Linux? Why is it popular? Describe the file system of Linux.

12. What is a K-Map? Simplify the given Boolean equation:

    Y = A'B'C' + AB'C' + A'BC' + ABC'.

13. Consider the set of processes given in the table below and find the average waiting time and turnaround time for the following scheduling algorithms (Give results in tabular format) -

    (a) Shortest Job First (SJF)

    (b) Shortest Remaining Job First (SRJF)

    (c) FCFS

    (d) Round Robin scheduling with time slice (t=2 and t=4)

Process id	Arrival time	Execution time
A	0	7
B	1	15
C	2	3
D	6	8
E	12	10
