

11. Compare and contrast the features and functionalities of Windows and Linux operating systems. Discuss their respective advantages and disadvantages for different types of users.
12. Consider a disk with 200 cylinders, numbered 0 to 199. The disk head is initially at cylinder 53, and the disk queue of pending requests is : 98, 183, 37, 122, 14, 124, 65, 67. Calculate the total head movement (number of cylinders the disk arm moves) to satisfy all the requests using FCFS, SSTF and SCAN Scheduling.
13. Simplify the following Boolean function using a 4-variable K-map and provide the minimized Boolean expression :

$$F(A, B, C, D) = \sum m(0, 1, 2, 5, 8, 9, 10, 15)$$

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

June – Examination 2024

**PGDCA/MSCCS (Pre.)/MCA
(Ist Year) Examination
COMPUTER FUNDAMENTAL 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.

Section–A

2×8=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) Convert $(A3B)_{16}$ to $(?)_2$.
- (ii) Explain the term “*interrupt*” in computer systems.
- (iii) Name any *four* System Software.
- (iv) What is role of Clipboard in Windows OS ?
- (v) What is the function of the boot loader in an operating system ?
- (vi) Give an example of an input device that uses OCR technology.
- (vii) What does the *ls -l* command do in a Linux terminal ? Give an example.
- (viii) What is a Plotter ? Give two applications of Plotter.

Section–B

8×4=32

(Short Answer Type Questions)

Note :- Answer any *four* questions. Each answer should not exceed **200** words. Each question carries 8 marks.

2. Discuss the differences between Random Access Memory (RAM) and Read-Only Memory (ROM).
Provide example of their uses.

3. Explain the concept of deadlock. Describe the necessary conditions for a deadlock to occur.
4. Write a short note on VI Editor.
5. Explain the differences between client-server and peer-to-peer network models.
6. What is Threads ? Explain the advantages of Multithreading.
7. What is a Process Control Block (PCB) ? Explain in detail with suitable examples.
8. What are optical storage devices ? Explain the differences between CD-R, CD-RW, and DVD-RW.
9. Discuss the importance of file permissions in operating systems. How are they managed in Unix/Linux ?

Section–C

16×2=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. What do you understand by RAID systems ?
Explain the functions and levels of RAID.