

Roll No.

67112

MCA 3rd Semester (With Old Notes)

Examination – December, 2016

OPERATING SYSTEMS

Paper : MCA - 302

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all selecting at least *one* from each Unit. All questions carry equal marks.

UNIT – I

1. (a) What is Operating System ? Why is it necessary for a computer system ? Also explain the role of an operating system as a resource manager of a computer system. 8
- (b) What do you mean by CPU Scheduling ? Explain the Scheduling Algorithms in detail. 8

2. (a) What do you mean by Process ? What is process states and PCB ? Explain in detail. 8
- (b) What do you mean by Simple batch, Multi Programmed, Real-time system and Timeshared Operating system ? Explain in detail. 8

UNIT – II

3. (a) What is Memory Management ? What is the main objective of the memory management module of an operating system ? Also list out the advantages and disadvantages of memory management. 8
- (b) What is Swapping ? How does it help in memory management ? Explain. 8
4. What is paging and how it works ? How does paging differ from segmentation ? Explain page replacement Algorithm in detail. Also explain the concept of Allocation of frames in detail. 8

UNIT – III

5. (a) What do you mean by File system structure and Allocation methods ? Also explain the concept of Free space management in detail. 8

- (b) Write detail note on Directory Management and Directory Implementation in detail. 8

6. (a) What do you mean by Process Management and Synchronization ? Also explain the classical problems of synchronization in detail. 8
- (b) Write detail note on Critical Section Problem and Semaphores in detail. 8

UNIT – IV

7. (a) What is deadlock ? Explain in detail the different methods for handling deadlocks. 8
- (b) Explain the concept of Deadlock Prevention and Deadlock Avoidance in detail. 8
8. Explain the following in detail : 8 + 8 = 16
- (a) Shell and types of shell
- (b) I/O software its types