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1 (Sem-4/FYUGP) COM 42 MN/(B)

2026

COMPUTER SCIENCE

(Minor)

SET-B

Paper : COM4400604MN

(Operating System)

Full Marks : 45

Time : 2 hours

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

SET-B

1. Answer the following questions : (Each question carries **1** mark) $1 \times 5 = 5$

- (i) Name *any one* type of OS.
- (ii) Name *one* condition of deadlock.
- (iii) What do you mean by paging?
- (iv) Define virtual memory.
- (v) What is deadlock?

2. Answer **any five** of the following questions : (Each question carries **2** marks)

$2 \times 5 = 10$

- (i) What is context switching?
- (ii) State *two* functions of an Operating System.
- (iii) Define process scheduling.
- (iv) What are system calls?
- (v) What is long term scheduler?
- (vi) What are semaphores?
- (vii) What are safe state in handling deadlock?
- (viii) What is disk scheduling?

- (ix) Define concurrency.

- (x) What is file access method?

3. Answer **any four** of the following questions : (Each question carries **5** marks) $5 \times 4 = 20$

- (i) Explain Operating System structure with examples.
- (ii) What are different states of a process? Briefly explain each of the states with a transition diagram.
- (iii) What is Process Control Block? What are the information stored in PCB?
- (iv) Explain *any one* CPU scheduling algorithm.
- (v) Explain memory hierarchy.
- (vi) Explain the Dining Philosophers' problem. How this problem can be solved by using synchronization tool offered by operating system?
- (vii) What are the advantages and disadvantages of non-contiguous memory allocation technique?
- (viii) What is thrashing? Explain.

4. Answer **any one** of the following questions :
(Each question carries **10** marks)

$$10 \times 1 = 10$$

- (i) What are the different types of Operating System? Explain.
 - (ii) Explain swapping in memory management. Describe the critical section problem.
 - (iii) State the *four* necessary conditions for deadlock. Explain how these conditions are addressed in deadlock prevention scheme.
 - (iv) Compare paging and segmentation. Explain how simple paging scheme works.
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