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BCA/D-21 **1203**

OPERATING SYSTEM-I
Paper–BCA-352

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *five* questions in all, selecting *one* question from each section. Question No. 1 is compulsory.

Compulsory Question

1. (a) Why operating system is necessary for a computer system ? List out various services performed by an operating system.

(b) How multiprogramming is different from multiprocessing ?

(c) Explain various states of a process.

(d) What do you mean by CPU scheduling ? Explain its criteria.

(e) Differentiate between preemptive and non-preemptive scheduling.

(f) Distinguish between serial and batch processing operating system.

(g) Explain mutual exclusion conditions.

(h) Write short note on :

(i) Client sewer model.

(ii) Peer-to-peer model. 16

SECTION–A

2. (a) Write short note on :

(i) Single user and multiuser operating system.

(ii) Buffering and spooling.

(iii) System calls.

(iv) System programs.

(b) Explain distributed OS. How is it different from time sharing OS ? 16

3. (a) Explain process Control Block. What are the different operations on process.

(b) What is the difference between preemptive and non-preemptive scheduling. Explain different CPU algorithms in detail. 16

SECTION–B

4. (a) What is multilevel queue scheduling ? How is it different from multilevel queue with feedback scheduling.

(b) Write short note on :

(i) Process hierarchy.

(ii) Process implementation.

(iii) Multi threading. 16

5. (a) What are the various methods of deadlock prevention and avoidance ? Explain in detail.

(b) Describe banker's algorithm by using example.

SECTION–C

6. (a) Explain the concept of segmentation. What are the advantages and disadvantages of this method.

(b) What is variable sized partition memory allocation. Explain the various storage replacement policies in variable's partition allocation scheme.

7. (a) Explain various page replacement policies in detail.

(b) What do you mean by thrashing ? What are its causes and explain various methods to handle it ? 16

SECTION–D

8. (a) What is a file ? Explain various file operations and file attributes. Describe various file structure by using diagram.

(b) What do you mean by file protection ? Explain various ways of file protection. 16

9. (a) What do you mean by dispatcher explain its role in process management. What is dispatch latency ?

(b) Explain the concept of priority scheduling. How is it different from sound robin scheduling ? Explain with example. 16