Roll No…….. **Total No. of Printed Pages: [01]**
Total No. of Questions: [09]

BBA (Semester –6th)
OPERATING SYSTEMS
Subject Code: BCSE0F94
Paper ID: [OE2150123]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a. Difference between process and thread.
b. Explain fundamental difference between N/w OS and distributed OS
c. Explain the concept of virtual machines
d. Define spooling and the need for it.
e. Describe differences between symmetric and asymmetric multiprocessing
f. List out services provided by the Operating Systems?
g. Give difference between Job-scheduling & CPU-scheduling
h. Explain how process are created and terminated
i. Illustrate the use of fork and exec system calls.
j. What are the modes of operation in Hardware Protection?

Section – B **(5 marks each)**

Q2. Explain Process Control Block. Draw the block diagram of process transition states.

Q3. What do you mean by RAID Structure? Also discuss different types of RAID levels.

Q4. What is critical section problem and what are the requirements that need to be satisfied by any solution to critical section problem? Give a solution to a 2 process critical section problem.

Q5. Explain Banker's deadlock-avoidance algorithm with an illustration

Q6. Memory partitions of 100kb, 500 kb, 200 kb, 300kb, 600 kb are available how would best, worst, first fit algorithm to place processes 212,417,112,426 in order. Which is the best algorithm?

Section – C **(10 marks each)**

Q7. What is the need of Page replacement? Consider the following reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 Find the number of Page Faults with FIFO, Optimal Page replacement and LRU with four free frames which are empty initially. Which algorithm gives the minimum number of page faults?

Q8. What do you mean by directory structure? Also discuss different types of directory structures

Q9. Given the following sequences 95,180,34,119,11,123,62,64 with the track 50 and ending track 199. What is the total disk travelled by the disk arm using FCFS, SSTF, LOOK and CLOOK algorithm.