

**PSG COLLEGE OF ARTS & SCIENCE**  
**(AUTONOMOUS)**  
**MCA DEGREE EXAMINATION MAY 2019**  
**(Second Semester)**

**Branch - COMPUTER APPLICATIONS**

**OPERATING SYSTEM**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks!)**

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 OS is a \_\_\_\_\_.  
 (i) hardware (ii) application software  
 (iii) system software (iv) peripheral unit
- 2 Identify the correct term for the brain of OS.  
 (i) Interface (ii) Kemal  
 (iii) Software (iv) Memory
- 3 Name the integer variable used in process synchronization.  
 (i) Binary variable (ii) Semaphore  
 (iii) Lock (iv) Exclusive lock
- 4 Which of the following is Preemptive scheduling algorithm at all conditions?  
 (i) FCFS (ii) SJF  
 (iii) Round Robin (iv) both (i) & (ii)
- 5 What are the conditions given will lead to a deadlock situation?  
 (i) Preemption (ii) Hold & Wait  
 (iii) Circular Wait (iv) both (ii) & (iii)
- 6 The diagrammatic representation of resources allocated to process is \_\_\_\_\_.  
 (i) RGA (ii) RG  
 (iii) RAG (iv) Circuit
- 7 The free spaces available as a hole in a memory which are scattered and can't be used for allocation is called as \_\_\_\_\_.  
 (i) Free Space (ii) Virtual Memory  
 (iii) Fragmentation (iv) defragmentation
- 8 The algorithms which replaces the page which is not used recently is  
 (i) FIFO (ii) LRU  
 (iii) Optimal (iv) (i) & (ii)
- 9 File access methods are  
 (i) Random (ii) Sequential  
 (iii) ISAM (iv) (i),(ii) & (iii)
- 10 Which command is used to change the file premium in linux?  
 (i) Chdir (ii) chmod  
 (iii) chown (iv) pwd

**SECTION - B (25 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

11 a OS as a Resource Manager - Discuss.

OR

i- nntP nn Multi Programmed batch system and Time Sharing

12 a Discuss on Synchronization.

OR

b What do you mean by Process? Discuss on Process States.

13 a Draw a RAG and explain the deadlock situation and conditions for deadlock to occur.

OR

b Write an algorithm and give example to identify the safe state.

14 a Write short notes on Virtual memory.

OR

b Expound on segmentation with Paging.

15 a Give a brief note on File Organization methods.

OR

b Write short notes on Unix File structure and Directory manipulation commands.

**SECTION -C (40 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

*Question no. 16 is compulsory*

16 a Assume 4 frame buffer and pages to be referred are 5,7,3,3,2,1,3,7,1,4,6,5,8. Explain FIFO, Optimal, Least recently used algorithms and demonstrate for the above problem.

17 a Give the solution for Readers, writers problem. Explain with algorithm.

OR

b Explain CPU Scheduling algorithms. For the given problem find the average waiting time for FCFS, SJF, SJRTE, Priority and Round robin scheduling.

Pid	CPU BT	AT	Priority	TQ
P1	13	0	4	3
P2	8	1	2	
P3	7	2	1	
P4	1	9	3	
P5	4	6	5	*

18 a Expound on deadlock avoidance.

OR

b Discuss on deadlock recovery and prevention.

19 a Assess and analyse:

(i) Virtual address space (ii) Page map table (iii) Base and Limit registers.

OR

b Describe about Memory Management and Virtual Memory Unit.

20 a Write short notes on Unix File Management, inodes, File manipulation commands.

OR

b Elucidate on secondary storage management and algorithms to access the tracks.