PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(Third Semester)

Branch – **COMPUTER TECHNOLOGY**

OPERATING SYSTEMS

Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks   (10 x 2 = 20)

1   Mention the advantages in using multiprogramming systems.
2   What are the benefits of Multithreads?
3   Define mutual exclusion.
4   Give the necessary conditions for deadlock to occur.
5   Consider a logical address space of eight pages of 1024 words each, mapped onto a physical address of 32 frames. How many bits are there is the logical address and in the physical address?
6   What are the responsibilities of file manager?
7   Mention the two main approaches to identify and reuse free memory area in a heap.
8   Define rotational latency.
9   Write a brief note on RAID.
10 What characteristics determine the disk access speed?

SECTION - B (25 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks   (5 x 5 = 25)

11 a   Define the essential properties of the following types of operating systems :
        (i) Batch   (ii) Time-sharing   (iii) Real time   (iv) Distributed
                            OR
    b   List five services provided by an operating system. Explain how each provides convenience to the users.

12 a   Explain the various issues associated with the thread in detail.
                            OR
    b   What is Gantt chart? Explain how it is used.

13 a   What do you mean by busy waiting? What other kinds of waiting are there? Can busy waiting be avoided altogether? Explain your answer.
                            OR
    b   Describe the approaches used in free space management.

14 a   Describe the various levels of RAID.
                            OR
    b   Describe the different disk scheduling algorithms with examples.

15 a   Write a brief note on interrupts.
                            OR
    b   Explain the special services provided by Kernel I/O. subsystems.

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks   (3 x 10 = 30)

16 What is Context Switching? Explain with necessary diagram.

17 What are the criteria for evaluating the performance of scheduling algorithms? Discuss about the approaches for evaluating the scheduling algorithms.

18 What are the advantages and disadvantages of contiguous and non contiguous memory allocation?

19 Explain various file allocation techniques in detail with their relative advantages and disadvantages.

20 Describe the life cycle of an I/O request in detail.

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