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Total Number of Pages : 01

B.Tech
PCCS4304

6th Semester Back Examination 2018-19

OPERATING SYSTEM

BRANCH : AEIE, BIOMED, CSE, ECE, EEE,
EIE, ELECTRICAL, ETC, FASHION, FAT, IEE, IT, ITE, METTA, MME

Time : 3 Hours

Max Marks : 70

Q.CODE : F769

Answer Question No.1 which is compulsory and any FIVE from the rest.

The figures in the right hand margin indicate marks.

Q1 Answer the following questions : (2 x 10)

- Mention the purpose of system calls.
- What is the difference between trap and interrupt?
- What is handle ? How does a process obtain a handle?
- What are the benefits of synchronous and asynchronous communication?
- Define external fragmentation?
- List the advantages and disadvantages of writing an operating system in high-level language such as C.
- What is the advantage of bit vector approach in free space management?
- State the typical bad-sector transaction.
- Give an programming example in which multithreading does not provide better performance than a single threaded solution.
- What are the counting based page replacement algorithm?

Q2 a) Describe three general methods for passing parameters to the operating system with example. (5)

b) Is it possible to have concurrency but not parallelism? Explain. (5)

Q3 a) Describe a mechanism by which one segment could belong to the address space of two different processes. (5)

b) Under what circumstances do page fault occur? Describe the actions taken by the operating system when page fault occurs. (5)

Q4 a) Provide two programming examples in which multithreading does not provide better performance than a single-threaded solution. (5)

b) Describe the actions taken by a kernel to context-switch between processes. (5)

Q5 a) Describe the major activities of operating system with regards to file management. (5)

b) What are the various disk space allocation methods? Explain one in details. (5)

Q6 Describe the difference between symmetric and asymmetric multiprocessing. What are the advantages and disadvantages of multiprocessor systems ? (10)

Q7 Consider a system consisting of four resources of the same type that are shared by three processes, each of which needs at most two resources. Show that the system is deadlock free. (10)

Q8 Write short answer on any TWO : (5 x 2)

a) FCFS Scheduling

b) Bootstrap Program

c) Asymmetric Multiprocessing.