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Question Paper Code: 93802

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Information Technology

19UIT305 - PRINCIPLES OF OPERATING SYSTEMS

(Regulation 2019)

Duration: One hour

Maximum: 30 Marks

Answer ALL Questions

PART A - (5 x 6 = 30 Marks)

1. (a) XYZ insurance company wants to automate its business process, choose any one computing technology and compare its pros and cons with other computing methods. App (6)

Or

- (b) Classify and justify the following applications as Batch oriented or Interactive. Generating monthly bank statement, Word processing, Generating personal tax returns. App (6)

2. (a) Consider a five Philosophers who spend their lives thinking and eating, when a philosopher thinks, she does not interact with her colleagues, she gets to hungry and tries to pick up the two chopstick that are closest that are closest to her. she may pick up only one chopstick at a time and she cannot pick up a chopstick that is already in the hand of a neighbour and eats without releasing her chopsticks provide a solution to this problem using monitors App (6)

Or

- (b) A barbershop consists of a waiting room with n chairs and the barber room containing the barber chair. if there are no customers to be served the barber goes to sleep. if a customer's enters the barbershop and all the chairs are occupied, then the customers leaves the shop. if the barber is busy but chairs are available, then the customers sits in one of the free chairs if the barber is asleep, the customers wakes up the barber. write a structure to coordinate the barber and the customers App (6)

13. (a) Compare the segmented paging scheme with the hashed page table scheme for handling large address spaces. Under what circumstances is one scheme preferable to the other? App (6)
- Or
- (b) Consider a system with 80% hit ratio, 50 Nano-seconds time to search the associative registers, 750 Nano-seconds time to access memory. App (6)
- Find the time to access a page
- (a) When the page number is in associative memory
 - (b) When the time to access a page when not in associative memory.
 - (c) Find the effective memory access time.
14. (a) Compare the memory organization schemes of contiguous memory allocation, pure segmentation, and pure paging with respect to the following issues: App (6)
- (a) External fragmentation
 - (b) Internal fragmentation
 - (c) Ability to share code across processes
- Or
- (b) In some systems, a subdirectory can be read and written by an authorized user, just like ordinary files. Describe the protection problems that could arise. App (6)
15. (a) Cloud architectures designed for service delivery and availability of services are extremely important. How do you handle the software failure within a cloud infrastructure environment using virtualization techniques? App (6)
- Or
- (b) The list of all passwords is kept within the operating system. Thus, if a user manages to read this list, password protection is no longer provided. Suggest a scheme that will avoid this problem. (Use different internal and external representations.) App (6)