

Time: 3 Hours

Marks: 80

1. Question 1 is compulsory.
 2. Attempt any three from the remaining five questions.
 3. Assume suitable data where required.
- 1 a.) What do you understand by Hybrid Kernel? Give suitable example. [5]
 b.) Explain Cache Affinity. [5]
 c.) Differentiate between Hard Real Time and Soft Real Time operating system. [5]
 d.) Explain middleware and its role in distributed system. [5]
 - 2 a.) What is buffer cache? Describe the structure of the buffer header. [10]
 b.) What is U Area? Explain in detail. [10]
 - 3 a.) Explain Transparency design issues in distributed computing. [10]
 b.) Mach OS ensures location independency during Inter-Process Communication. [10]
 Explain in detail.
 - 4 a.) Differentiate between Clock Driven and Event Driven scheduler. [10]
 b.) What are the criteria for selecting appropriate frame size in cyclic scheduler? [10]
 Compute suitable frame size for the following. e stands for executing time, p stands for period and d stands for deadline. All the timing parameters are in milliseconds.
 e1=1, p1=4 d1=4;
 e2=1, p2=5 d2=5;
 e3=1.5, p3=20, d3=20
 - 5 a.) Explain Test & Set lock algorithm. Discuss the benefits of Test Test & Set over Test & Set algorithm. [10]
 b.) Explain non-uniform memory access (NUMA) architecture? Explain cache coherency in NUMA types multiprocessor. [10]
 - 6 a.) Discuss various issues of cloud OS. [10]
 b.) Explain Android OS architecture in detail. [10]