

Q1. Describe the different classes of cloud resource management policies

Q2. Discuss the mechanisms/approaches for implementation of resource management policies

Q3. Explain the convex cost function  $J(I)$  in the control theory based formulation of resource management and the approach to solve this optimisation problem.

Q4. Explain with diagram the structure of an optimal controller

Q5. Explain the two level control architecture and its components.

Q6: What is stability? Discuss the sources of instability of a control system.

Q7. a. Explain the concepts of threshold and control granularity.

b. Explain the algorithm for proportional thresholding

Q8. With a neat diagram, explain the coordination of specialized autonomic performance and power managers.

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Q9. Discuss the mathematical formulation of utility including power and performance aspects.

Q10. Discuss the three types of experiments conducted to study the interaction between power and performance on different workloads.

Q11. Explain in detail with supporting diagram the utility based model for cloud based web services.

Q12. Explain the max-min fairness criterion.

Q13. With a diagram explain the different classes of resource allocation requirements.

Q14. Explain the conditions relating to fairness.

a. Fair Queuing

b. Start time Fair queuing

Q15: Explain Fair-queuing scheduling algorithm.

Q16. Explain the rules used by the Start-time fair-queuing scheduler.

Q17. Explain step by step working of SFQ algorithm for two threads with weight  $w_a=1$  and  $w_b=4$  and time quantum  $q=12$ .

Q18. Explain the terminologies and concepts relating to BVT.

Q19. T Explain step by step working of BVT algorithm for scheduling two threads  $a$  and  $b$  of best-effort applications. The first thread has a weight twice that of the second,  $w_a = 2w_b$ ; when  $k_a = 180$  and  $k_b = 90$ , then  $\Delta = 90$ .

Q20. How are real-time threads handled in BVT? (5 marks)