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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester, B.E. - Information Science and Engineering

Semester End Examination; Dec. - 2019

Cloud Computing

Time: 3 hrs

Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

- 1 a. Compare the three cloud computing delivery models, from the point of view of application developers and users. Discuss the security and reliability of each model. Briefly analyse the differences between each of them. 8
- b. Discuss about the following:
- i) The services offered by AWS are accessible from AWS management console 12
- ii) The Microsoft windows Azure with a neat diagram
- 2 a. Software licensing is a major problem in cloud computing. Discuss several ideas to prevent an administrator from hijacking the authorization to use a software license. 8
- b. Discuss about the following:
- i) SLA with objectives 12
- ii) Microsoft Windows Azure and Online Services
- iii) Major challenges faced by cloud computing

UNIT - II

- 3 a. With suitable example, explain the ASCA algorithm to allow for a single round auction users are represented by proxies. 10
- b. Illustrate the use of software system called Bigjob, for the execution of loosely coupled workloads using Azure platform. 10
- 4 a. Explain the Map-Reduce programming model with a neat diagram. 10
- b. Interpret the case study: The Grep the Web application with a neat suitable diagram. 10

UNIT - III

- 5 a. Compare and contrast between workflows and program using a suitable diagram. 6
- b. Outline the possibility to compile an HLL program for a VM environment with a neat flow diagram. 7
- c. Explain the Xen network architectures with neat diagrams. 7
- 6 a. Explain resource virtualization. Compare and contrast between process VM and system VM. 10
- b. Outline and summarize the different para-virtualization strategies for X86 Xen implementation. 10

UNIT - IV

- 7 a. For the following example, illustrates how the estimated time deviates from actual time using BVT algorithm for scheduling three threads, a , b , and c of best effort applications. The first thread has a weight twice of the weight of the second, $w_a = 2w_b$; when $k_a = 180$ and $k_b = 90$, then $\Delta = 90$. Thread c wakes up periodically at times $t = 9, 18, 27, 36, \dots$ is active for 3 units of time and has a time warp of 60 mcu. (Hint: Consider periods of real time allocation of $C = 9$ mcu; the two threads a and b are allowed to run for $2C/3 = 6$ mcu and $C/3 = 3$ mcu, respectively). 12
- b. Interpret NFS and explain the NFS client-server interaction with a neat diagram. 8
- 8 a. Explain the five classes and the four basic mechanisms for the implementation of resource management policies. 8
- b. Explain open-source implementation of the Map-Reduce application subject to deadlines. 12

UNIT - V

- 9 a. Explain the risks of strong data in the cloud. 8
- b. Explain big table by considering a suitable example. 5
- c. Summarize the general parallel file system with neat GPFS configurations. 7
- 10 a. Explain the architecture of GFS (Google File System) with a neat diagram. 8
- b. Explain the XFS design goals and types of XFS system components with a neat diagram. 12

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