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317301

December, 2019

M.Tech. - III SEMESTER (CN/CSE)

Cloud Computing (MCS-18-304)

Time : 3 Hours] [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Explain in brief how a Cloud service is a Utility service? (1.5)

(b) Name some of the barriers in adopting cloud computing in an enterprise. (1.5)

(c) Explain in brief the SPI model of Cloud Computing? (1.5)

(d) Name *two* security management standards for Cloud Computing. (1.5)

(e) What does Map (k, v) $\rightarrow$ <k', v'>* and Reduce (k', <v'>*) $\rightarrow$ <k', v''>* signifies? (1.5)

(f) What are the basic aspects of data security in a cloud? (1.5)

(g) What is the difference between privacy and information security? (1.5)

(h) How do we secure virtual servers in a cloud? (1.5)

(i) What are the main objectives of Audit and Compliance process? (1.5)

(j) What is identity and access management in a cloud? (1.5)

PART - B

2. (a) Derive the general expression $T_{Rn+1} = T_{Sn+1} + \text{Max}[0, D_n - A_{n+1}]$ for a single server queue, where T_{Rn} = resident time of nth pckt, T_{sn} = service time for nth pckt & A_n & D_n are arrival and departure times respectively. (10)

(b) With the help of an illustration, explain components of a cloud architecture. (5)

3. (a) What are the limitations of a traditional software delivery model and how cloud service model addresses these issues? (5)

(b) What is the Virtualization concept in Cloud Computing? Explain Hypervisor-1 and Hypervisor-2. What can be done to secure virtualization layer in IaaS Host level security? (10)

4. What is IAM functional architecture? Explain in detail with a reference to identity life cycle? (15)

5. (a) How data security and storage is achieved in a cloud? (5)

(b) Explain how do we achieve infrastructure security in a cloud at Network, Host and Application level. (10)

6. (a) What is internal policy compliance? Explain CSP life cycle approach for policy compliance. (5)

(b) What is a typical data life cycle in the context of privacy management for cloud computing? Explain in brief. (10)

7. How do we achieve Saas, PaaS and IaaS availability in cloud computing? List major considerations at each level. (15)
