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P. Pages : 2

Time : Three Hours

**NJR/KS/18/4751**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.

1. a) What is cloud computing? Explain the different characteristics of cloud computing in detail. 8  
b) Explain the advantages & limitations of cloud computing. 6

**OR**

2. a) Differentiate between the cluster, grid & cloud computing. 8  
b) Explain the different challenges & legal issues in cloud computing. 6
3. a) Draw & explain the detailed architecture of cloud computing. 7  
b) Define virtualization. What is the need of virtualization in cloud computing? 6

**OR**

4. a) Explain the different services provided by cloud computing. Explain characteristics, advantages, limitations & service providers for each of the cloud services. 9  
b) List & explain the advantages & limitations of different deployment models in cloud computing. 4
5. a) Define big data, explain the characteristics of big data in detail. 6  
b) List the different data units used (from smaller to largest) 2  
c) List the different techniques used for clustering the big data. Explain k-means clustering. 5

**OR**

6. a) Explain the Hadoop Map Reduce Job execution with the help of neat diagram. 7  
b) List & explain the different steps involved in Hadoop cluster setup. 6
7. a) Explain the different key security challenges for cloud applications. 6

- b) Explain the concept of Identity & Access Management in cloud computing with neat diagram for Role based access control in the cloud. 7

OR

8. Write short notes on **any three**. 13

- i) Application level security.
- ii) Infrastructure level security.
- iii) Virtual Machine security.
- iv) Network level security.

9. a) Explain the different object oriented concepts in C# .Net with the help of examples. 8  
b) Draw & explain ADO .NET architecture. 6

OR

10. a) Explain the Anatomy of .ASPX page. Create a sample Registration form using ASP .NET. 8  
b) Write a program in C# to design calculator as console based application. 6
11. a) Explain the different types of storages in windows azure. 7  
b) Explain the complete Azure life cycle in detail. 6

OR

12. a) Write down the steps involved in deployment of an application to windows Azure cloud. 7  
b) What are the steps for creating a simple cloud application using Azure. Explain with the help of an example. 6

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**The secret of getting ahead is getting started.**

**~ Mark Twain**

