



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

(An Autonomous Institution affiliated to VTU, Belagavi)

**Fourth Semester, Master of Computer Applications (MCA)**

**Semester End Examination; June - 2017**

**Cloud Computing**

*Time: 3 hrs*

*Max. Marks: 100*

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

### UNIT - I

- 1 a. What do you mean by Network-Centric computing and Network-Centric content? Explain its characteristics, advantages and disadvantages. 10
- b. Explain the cloud computing delivery models. 10
- 2 a. List and explain the reasons for success of cloud computing and key challenges faced by cloud computing. 10
- b. With neat diagram, explain the architecture of Microsoft Windows Azure. 10

### UNIT - II

- 3 a. Explain Zoo keeper in detail with its service guarantees and operations. 8
- b. With an example, demonstrate Map-Reduce programming model. 8
- c. Define a task in a workflow. List out its attributes. 4
- 4 a. List and explain any four workflow patterns with an example each. 10
- b. With a neat diagram, compare the lifecycle of a workflow with the lifecycle of a program. 10

### UNIT - III

- 5 a. What is virtualization? Explain layering and interfaces between layers in a computer system. 8
- b. Compare full virtualization with para virtualization. 6
- c. What is software fault isolation? Explain its need. 6
- 6 a. Define virtual machine monitor and virtual machine. Explain different classes of virtual machines with a neat diagram. 10
- b. Explain Intel X-86 hardware support for virtualization. 10

### UNIT - IV

- 7 a. Explain the structure of optimal controller. 10
- b. Discuss the stability factor for two-level resource allocation architecture with a neat figure. 10
- 8 a. List and explain the different cloud resource management policies with examples. 10
- b. Explain pricing and allocation algorithm. 10

**UNIT - V**

- 9 a. With a neat sketch, explain the components and working of a GFS cluster. 10
- b. Write a note on locks and chubby. 6
- c. Write a note on trust. 4
- 10 a. With a neat figure, explain NFS architecture. 8
- b. Write a note on NOSQL databases. 4
- c. Explain different cloud security risks. 8

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