[5255] - 689

M.E. (Computer Engineering)

ADVANCED STORAGE SYSTEMS AND INFRASTRUCTURE MANAGEMENT

(Semester - III) (2013 Pattern) (610101)

Time : 3 Hours]   *[Max. Marks :50*

Instructions to the candidates:
1) *Attempt any FIVE questions.*
2) *Neat diagram must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Assume suitable data, if necessary.*

Q1) a) An application has a 1,000 heavy users at a peak of 2 IOPS each and 2, 000 typical users at a peak of 1 IOPS each. It is estimated that the application also exprience an overhead of 20 percent for other workloads. The read/write ratio for the application is 2 : 1. Calculate RAID corrected IOPS for RAID 1/0, RAID 5, and RAID 6. **[5]**

b) Explain meaning of term "Digital data". **[5]**

Explain the factors contributing to the growth of digital data. Also explain types of data.

Q2) a) With the help of a neat diagram, illustrate FCSAN evolution from FC-AL to enterprise SANs. Also explain, components of FC SAN. **[5]**

b) Explain storage virtualization. Enlist and explain the types of storage virtualization. **[5]**

Q3) a) A system has three components and requires all three to be operational 24 hours, Monday through Friday. Failure of component 1 occurs as follows:

- Monday = No failure

- Tuesday = 5 a.m. to 7 a.m.

- Wednesday = No failure

- Thursday = 4 p.m. to 8 p.m.

- Friday = 8 a.m. to 11 a.m.

Calculate the MTBF and MTTR of component 1. Also calculate the availability of the component 1. **[5]**

b) Explain following storage array-based local replication implementations

   i) Full -Volume mirroring.

   ii) Pointer - based, Full - volume replication.

   iii) Pointer based virtual replication. **[5]**

Q4) a) Explain the current business demands. Also explain complexity of today's computing environment. **[5]**

b) Explain how evolution of systems from mainframes upto new age systems, have affected the system management. **[5]**

Q5) a) With the help of a neat diagram, explain activities of service level management. **[5]**

b) With the help of a flow-chart, explain activities carried out in Reactive Problem Managment. **[5]**

Q6) Explain following in the context of Infrastructure Management.

a) Factors to consider in designing IT organisations. **[5]**

b) Information Technology Infrastructure Library. **[5]**

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