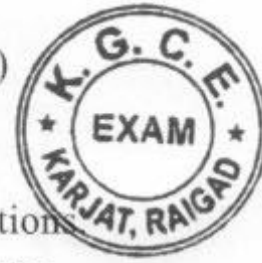


Storage N/W Mgmt & Retrieval / 02.12.16
QP Code : 721200

(3 Hours)

[Total Marks : 80



- N.B. :
- (1) Question no. 1 is compulsory.
 - (2) Attempt **any three** of remaining questions.
 - (3) Assume suitable data wherever necessary.
 - (4) Figure indicates marks.

1. (a) Calculate the storage efficiency of RAID level 1, 3, 5 and 6. The number of disk drives available are 6 each having capacity of 200 GB. Also find the usable capacity of each RAID level. 10
- (b) Consider a disk I/O system in which an I/O request arrives at a rate of 100 IOPS. The service time $R_s = 8\text{ms}$. Calculate the following measures of disk performance:
 - (1) Utilisation of I/O controller (U)
 - (2) Total Response Time (R).
 - (3) Average Queue Size.
 - (4) Total time spent by request in the Queue.

If the service time is half i.e. $R_s = 4\text{ms}$ and I/O request arrives at a rate of 100 OPS, then calculate the following measures of disk performance:

- (1) Utilisation of I/O controller (U)
 - (2) Total Response Time (R).
 - (3) Average Queue Size.
 - (4) Total time spent by request in the Queue.
2. (a) Explain in detail Fibre Channel Protocol Stack with neat diagram. 10
 - (b) Explain ILM for Loan Management System with neat diagram. 10
 3. (a) Explain in detail the different RAID levels with neat diagram. Also list out the advantages and disadvantages for all RAID levels. 10
 - (b) Explain the architecture of ISS in detail with neat diagram. 10
 4. (a) Explain Block-level and File-level storage virtualization in detail with neat diagram. 10
 - (b) Explain BC planning Lifecycle in detail with neat diagram. Give comparison between RPO and RTO. 10
 5. (a) List out the components of information system and its types. Explain different data compression techniques in detail. 10
 - (b) Explain Boolean Queries and Vector Queries in detail. 10
 6. Write Short note (Any four) 20
 - (a) NDMP
 - (b) DAFS
 - (c) VIA
 - (d) Backup operations
 - (e) FC-SAN
 - (f) Vector-Based Matching