

UG Even Semester (CBCS) Exam. September, 2020**COMPUTER SCIENCE****(6th Semester)**

Course No: MCSCC-604

*(Advance Database Management System)**Full Marks: 70**Pass Marks : 28*

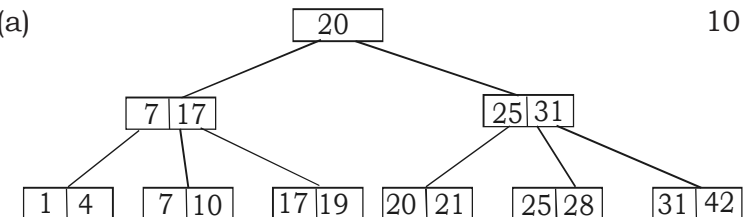
Time: 3 hours

*The figures in the right margin indicate full marks for the question
Answer any five questions.*

1. (a) What is the difference between fixed length field records and variable length field records in terms of space or record length. 8

- (b) Discuss in brief Record Blocking and utilization of the unused space on disk. 6

2. (a) 10



Delete the nodes 21, 31, 20, 10, 7, 25, 42 from the above give β^+ tree of order $(m) = 4$

- (b) What are the different types of file organisation method? Discuss them in brief.

4

3. (a) Discuss the problem of deadlock and starvation and the different approaches to dealing with these problem. 2+2+6=10
(b) What is a predicate lock and when are Latches used? 4
4. (a) Discuss the time stamp ordering protocol for concurrency control? How does strict timestamp ordering differ from basic timestamp ordering. 10
(b) Define the violations caused by dirty read. 4
5. (a) Briefly discuss the purpose of the object query language (OQL). 5
(b) Describe the following concepts with an example. 3x3=9
 - (i) Grouping
 - (ii) Aggregate function
 - (iii) Quantifier
6. (a) What are the differences and similarities of class inheritance via 'extends' and interface inheritance via ':' in the ODMG (Object Database Management Group) object model. 3+3=6
(b) Discuss the various collection (or multivalued) type constructors. How are they different from each other? 5
(c) What is literals and what are the different types of Literals? 3
7. (a) Explain Database Load-Balancing? 7
(b) Explain Input-output parallelism. 7
8. (a) Explain the shared memory and shared disk architecture. 7
(b) Explain the server system architecture. 7
9. (a) What minimum condition should be satisfied for a database to be called distributed. 4
(b) Discuss the concept of transparency in centralised database versus transparency in distributed database (DDB). What are the different types of transparency possible in DDB? 2+4x2=10
10. (a) Discuss the problem arise in a distributed DBMS environment that are not encountered in a centralised DBMS environment. 8
(b) Discuss the voting method used concurrency control in distributed database. 6
