

2015

(May)

COMPUTER APPLICATION

(General)

Course : 401

(Database Management System)

Full Marks : 48

Pass Marks : 19

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

1. Choose the correct option : $1 \times 6 = 6$

(a) In a relational database, a referential integrity constraint is specified with the help of

(i) primary key

(ii) foreign key

(iii) consistency key

(iv) candidate key

(2)

(b) A relational schema R is in 3rd normal form if

- (i) each non-prime attribute of R is fully dependent on every key
- (ii) all attributes in R have atomic domains
- (iii) R satisfies 2nd normal form and no non-prime attribute of R is transitively dependent on the primary key
- (iv) R contains only 3 keys and all these 3 keys are primary

(c) Which of the following is not a function of DBA?

- (i) Network management
- (ii) Routine maintenance
- (iii) Schema definition
- (iv) Authorization of data access

(d) The concept of locking can be used to solve the problem of

- (i) lost update
- (ii) uncommitted dependency
- (iii) inconsistent data
- (iv) deadlock

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(Continued)

(3)

(e) A functional dependency of the form $x \rightarrow y$ is trivial if

- (i) $y \subseteq x$
- (ii) $y \subset x$
- (iii) $x \subseteq y$
- (iv) $x \subset y$ and $y \subset x$

(f) The column of a table is referred to as

- (i) tuple
- (ii) attribute
- (iii) entity
- (iv) degree

2. Answer the following (any six) : 2×6=12

- (a) Mention two advantages of using DBMS.
- (b) Define instance and schema.
- (c) What is a data dictionary?
- (d) Describe the two types of participant constraints.
- (e) Mention the various user privileges.
- (f) When is a transaction rolled back?
- (g) What is an object-relational database?

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(Turn Over)

3. Answer any *five* from the following :

- (a) Explain the difference between external, internal and conceptual schemas. 6
- (b) Explain with examples how primary key and foreign key concepts are useful in relational data model. 6
- (c) Explain second normal form with an example. 6
- (d) Describe different recovery techniques. 6
- (e) Describe the following in terms of providing security for a database : $2+2+2=6$
 - (i) Authorization
 - (ii) Backup
 - (iii) Integrity
- (f) What is transaction? Why is transaction important limit of operations in a DBMS? $2+4=6$
- (g) Write short notes on (any *two*) : $3 \times 2 = 6$
 - (i) Hierarchical model
 - (ii) Distributed databases
 - (iii) Multimedia databases
 - (iv) Functional dependency
