2017

M.Sc.

3RD SEMESTER EXAMINATION

COMPUTER SCIENCE

PAPER—COS-304

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Module—I

(*DBMS*)

Answer any *two* questions. 2×10

1. (a) What is a data model ? Describe three layers architecture of DBMS. 2+3

(b) What are the differences between logical data independence and physical data independence ? 3

(c) What are the major functions of the database administrator ? 2

2. Write short notes on following topics (any *two*) : 2×5

(a) DDL, DML, DCL and DQL

(b) Derived attribute

(c) Identifier

(d) Single valued and multi valued attributes.

3. Suppose you are asked a design a database system for the management of grants based on the following information.

Each student has a unique student id, a name, and an emial ; each club has a unique club id, a name, a contact telephone number, and has exactly one student as its president. Each student can serve as a president in at most one of the clubs, although he/she can be the members of several clubs. Clubs organize activities and students can participate in any of them. Each activity is described by a unique activity id, a place, a date, a time and those clubs that organize it.

Draw an E-R diagram for the system. Write your assumption if necessary.

4. (a) What is normalization ? 2

(b) Why does normalization used in database ? 2

(c) Describe the update anomalies with examples. 6

[Internal Assessment — 5 Marks]

Module—II

(Internetworking)

Answer any *two* questions. 2×10

1. (a) What is network topology ? What are the advantages and disadvantages of star topology ?

(b) What is the use of a switch as an internetwoking device ? (2+2+2)+4

2. (a) What is ISO/OSI reference model ?

(b) Write down the responsibilities of network and data link layers.

(c) Define network protocol. Give some examples.

2+(3+3)+2

3. (a) What is the number of bits in an IPv4 address ?

(b) List the classes in classful addressing in IPv4. Determine number of networks and number of hosts in each network in class B address domain.

(c) What is port address ? Give examples.

1+(1+4)+(3+1)

4. Write short notes : 4×2.5

(a) WWW

(b) Hub

(c) SMTP

(d) Fibre Optic Cable

[Internal Assessment — 5 Marks]