

M.Sc. 3rd Semester Examination, 2022

COMPUTER SCIENCE

(Database Management System/Internet Technology)

PAPER – COS-304(M1 & M2)

Full Marks : 40

Time : 2 hours

The figures in the right hand margin indicate marks

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

PAPER—COS-304(M1)

(Database Management System)

A. Answer any two questions from the following : 2 × 2

- 1. What is the difference between 'Strong Entity Set' and 'Weak Entity Set' ?**

2. Write the difference between DDL and DML. Give examples for them.
3. Define the cardinality of a relationship.
4. Is it possible to delete a column in SQL ? If yes then what command can be used to do that ? Write the syntax.

B. Answer any *two* questions from the following : 4×2

5. Create an 'COMPANY' database with the following tables, insert few appropriate data and answer the following queries :

EMPLOYEE (e_id, first_name, last_name, salary, d_id, joining_date, gender)

DEPARTMENT (d_id, d_name)

Query 1 :

Get the name of employees, who works in production department. 2

Query 2 :

Find the employee who gets highest salary. 2

6. (a) Define a *foreign key*. Why is the concept needed? 2
- (b) How does it play a role in the Join operation? 2
7. Discuss the entity integrity and referential integrity constraints. 4
8. Write a ER Diagram for a library management system? 4

C. Answer any *one* question from the following : 8×1

9. (a) What is functional dependency? 2
- (b) Discuss the 'insertion anomalies', 'update anomalies' and 'deletion anomalies' with respect to normal forms with suitable examples and suggest a method to overcome them. 6
10. (a) What is normalization of a relation? 2
- (b) Define 2NF. 2
- (c) Why 3NF better than 2NF? Justify. 4

PAPER--COS-304(M2)

(Internet Technology)

D. Answer any *two* questions from the following : 2×2

11. What are the necessary components of data communication ?

12. What are the differences between ISO/OSI and TCP/IP models ?

13. Define internet.

14. What is WWW ?

E. Answer any *two* questions from the following : 4×2

15. What is network ? Define the responsibilities of each layer in ISO/OSI model.

16. Write the differences between LAN, MAN and WAN.

17. Describe the frame format of Traditional Ethernet.

18. Write a HTML program which includes image, hyperlink and table.

F. Answer any *one* question from the following : 8×1

19. Write short note about following (any *two*) : 4×2

(i) Repeater

(ii) Remote login

(iii) Table in html.

20. (a) Explain different class of the classful addressing.

(b) Find the range of block of following addresses.

(i) 123.56.77.32/26

(ii) 17.34.16.0/22

4 + 4