



Name :

Roll No. :

Invigilator's Signature :

CS/B.Sc. (H)/BT/Gen./Micro.-Bio./Mol.-Bio./SEM-4/CA-401/2013

2013

**INTRODUCTION TO DBMS COMPUTER NETWORK
AND NUMERICAL ANALYSIS**

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

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

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$
 - i) In a DBMS, SQL is used to
 - a) retrieve stored data
 - b) removing records
 - c) define database schema
 - d) all of these.
 - ii) In ER diagram, the derived attribute is graphically represented as
 - a) Pentagon
 - b) Ellipse
 - c) Dotted ellipse
 - d) Triangle.



- iii) A transaction is said to be in committed state only after
 - a) final statement has been executed
 - b) successful completion
 - c) it has been rolled back
 - d) none of these.
- iv) The logical structure of a database is termed as
 - a) schema
 - b) instance
 - c) table
 - d) atomicity.
- v) The task of data encryption belongs to
 - a) application layer
 - b) presentation layer
 - c) data-link layer
 - d) session layer.
- vi) Which of the following is fibre-optic connector ?
 - a) RJ45
 - b) BNC
 - c) BNCT
 - d) MTRJ.
- vii) In a frequency-domain plot, the vertical axis measures the
 - a) peak amplitude
 - b) frequency
 - c) phase
 - d) slope.
- viii) In a time-domain plot, the vertical axis is a measure of
 - a) amplitude
 - b) frequency
 - c) phase
 - d) time.
- ix) In a time-domain plot, the horizontal axis is a measure of
 - a) signal amplitude
 - b) frequency
 - c) phase
 - d) time.
- x) In Newton's forward and backward interpolation formula, points are
 - a) equally spaced
 - b) unequally spaced
 - c) both (a) & (b)
 - d) none of these.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

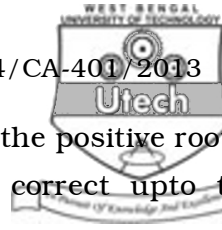
2. Why cladding is used in fibre-optic cable ? Explain the advantages of fibre-optic cable. $2 + 3$
3. What do you mean by functional dependency ? Explain with examples.
4. Evaluate $\int_0^1 (4x - 3x^2) dx$, taking 10 intervals by trapezoidal rule.
5. Describe two-tier database architecture.
6. Consider the net id — 192.168.0.1/28, find out no. of subnet, no. of hosts, last host of 3rd subnet and broadcast address of 2nd subnet.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Write the advantages of DBMS over traditional file system. Which one is better-3NF or BCNF, explain. Define MVD. $8 + 5 + 2$
8. Draw an ERD on 'Hospital Management System' with proper key attribute. Write a short note on SELECT & PROJECT operation. $7 + 8$



9. a) Apply the method of Bisection to find the positive root of the equation $x^4 + x^2 + 3x + 4 = 0$ correct upto two significant figure.
- b) Describe the physical structure of optical fibre & state its transmission characteristics. Give two advantages & disadvantages of it.
- c) Find $y (0.2)$ by taking $h = 0.1$ using Runge-Kutta 4th order method given that
- $$\frac{dy}{dx} = xy + y^2, y(0) = 1 \qquad 5 + 5 + 5$$
10. a) What is a protocol ? Compare between TCP/IP & OSI model.
- b) What are the various services provided by internet ? Name the five current IP address classes.
- c) What is fundamental difference between circuit switching & packet switching ?
- d) What are bridges & routers ? In which layers are they used ?
- e) Differentiate among LAN, MAN, WAN. $3 + 3 + 3 + 3 + 3$
11. a) What is the reason for transmission impairment ? Discuss about three types of transmission impairment.
- b) Explain different types of data transfer modes.
- c) Define guided & unguided media. Give example. Write short note on IP address. $7 + 4 + 4$